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GLEANINGS IN BEE CULTURE

AUGUST, 1919



EDITORIAL

WE HAVE on file a large number of unsatisfied complaints against the Pelican Ap

aries Company of
Complaints New Orleans, La.,
Against whose advertisement
Advertisers. we carried in

April and May of
this year; and against the J. E. Marchant
Bee & Honey Company of Columbus, Ga.,
whose advertisement we carried two years
ago. We have written to these parties a
number of times, but have failed to get
satisfactory replies; and therefore we feel
it a duty to advise our readers, before re-
mitting any money with their orders, first
to ascertain if these firms can and will fill
their orders.

THE EDITOR SAYS it seems good to get
home again. While California is beautiful

and the climate de-
Back Home lightful, good old
Again. Ohio with its beau-
tiful green shade
trees and green fields was never more ap-
preciated than now. Much of California is
dry and brown, especially in the summer
time. All of the East or east of the Mis-
sissippi is green.

The editor no more than gets home than
up and off he goes again—this time to the
North and far East. More anon.

California again—yes, we are expecting
to go back for the month of December and
perhaps longer. There is also a long and
loud call from the great Northwest.

ON ACCOUNT of the shortage of sugar re-
ported elsewhere, we have been conducting

New Orleans some experiments
Molasses for in feeding molas-
Feeding Bees. ses. We bought a
barrel of New Or-
leans. The stuff

tastes sweet and is sweet; but the bees
won't touch it, even when it is smeared all
over the frames and the combs. In one
case where the bees were trying to rob, we
smeared some of this New Orleans molasses

on the front of the hive—presto, good-bye
robbers! They can't stand even the smell
of it.

There are other brands of table syrups
that the bees will take, and in the mean-
time some of you may be able to get brown
sugar. If so, you will find it a very good
substitute for granulated white sugar.

THE STORY TOLD in another column about
Harry R. Warren will seem to some like a

fairy tale. Some of
Locality— the old beekeepers
What It Means. of the country will,
perhaps, say that
there is something wrong, or that Warren
could secure as good or better results with
less labor. All such should remember that
localities in the United States vary so much
that what works well in one place might not
work in another. Furthermore, the editor
once believed that bee behavior was the
same all over the United States. He is re-
minded again of the question asked by Josh
Billings—"What's the use of knowin' so
much when so much you know ain't so?"
Or, to put it more exactly, bee behavior is so
much modified by locality that one is almost
forced to forget what he once knew back
in the East and learn his A B C of beekeep-
ing all over again. It takes years for even
a good beeman to learn his locality; and this
is particularly so in the great West.

Some of the fundamental principles that
work well in the East will not work in the
West. Take the case of swarming. The
rules that apply to that particular bugaboo
of the beekeeper of the East and some parts
of the West utterly fail in some localities
in the West. In some places the bees just
will not swarm, apparently; or, to put it
more exactly, there is no swarming problem,
simply for the reason that the bees do not
swarm and do not want to swarm during
flows of honey. In the spring the bees will
swarm, but not enough to bother the operator,
and yet perhaps 50 or 100 miles away
the swarming problem is serious.

On account of the varied conditions of the
different localities, there is a heavy handi-
cap in migratory beekeeping, because the
migratory fellows find they have something

to learn; and, if they do not learn it, they will lose out and that right speedily.

One of the problems that the migratory beekeeper encounters is the behavior of the queens. We will say he moves his bees from Idaho, where the winters are cold, down into some location in southern California. The queens that went thru strenuous service in the northern locality, but which have had only a very short rest, begin breeding again. They may, in fact, lay every month in the year. The result is, their vitality is exhausted by the time of year they ought to be doing heavy duty in egg-laying. The remedy is, of course, to requeen, and that costs money. When he ought to requeen is often the time when he can not get queens.

Again, there are wintering problems in tropical and semi-tropical States just as there are wintering problems in the North. Bees in the Southland require more watchful care than bees in the North; and we have sometimes said that it is more difficult to keep bees in a semi-tropical than in a temperate climate.

Again, the question of bee disease is much worse in semi-tropical than in temperate climates; and this is especially true of European foul brood. While the treatment is essentially the same in both climates, the problem of handling and curing is greater.

The bee-moth proposition is not a serious one in northern climates, for the reason that the cold winters kill off the eggs and larvae. In semi-tropical climates these pests thrive the year round, and woe betide the combs that are left entirely exposed. Thousands of dollars' worth are wasted every year in warm States for beekeepers who are careless enough to leave their stuff around.

While bee nature is the same in all climates, to a certain extent that same bee nature is modified; and unless the producer modifies his methods of management he will lose out.



AT THIS TIME it is a little premature to forecast what the white-clover crop will be

this season; but re-

**Honey-crop
Conditions.**

ports at present
from most of the
clover districts,

including Wisconsin, Illinois, Indiana, Ohio, Michigan, and parts of Ontario, indicate a decided shortage. In New York the yield will be normal. The season in the Eastern States was full of promise—promise which at this time (July 21) appears not to be fulfilled.

We have learned that there is a shortage in Colorado, but a heavy yield of alfalfa in some of the other alfalfa-growing States. There surely was a shortage of mountain sage and orange in California.

On the other hand, there are vast stocks of honey left over from last season, particularly in Europe. Also there are reports of a large quantity of 1917-18 honey in South America, West Indies, New Zealand, and

Australia. Just how far these left-over stocks will offset the shortage of crops this season, fancied and real, no one can at this time say. The left-over stocks must be subtracted from last year's crop and added to this year's. At the time the armistice was signed there were large quantities of honey ready to go to Europe, but which had to be held.

In the mean time there appears to be a scarcity of sugar, and in many parts of the United States the housewife has been limited to five and even two pounds per family. We have been unable to buy granulated sugar to feed our colonies to build them up for winter, and have been compelled to use brown sugar and molasses, some of which the bees would not touch. Even the brown sugars are hard to get.

Our readers will remember that one of the sugar magnates of the Pacific coast told the editor that there was a million-ton shortage this year. This has been denied; but on the other hand there is the stubborn fact that we cannot get sugar at the present time. The newspapers are saying that there is a shortage of sugar in Europe. Is some one profiteering by storing vast quantities of sugar against a rise in price? We do not know. It looks as if there were a colored gentleman somewhere.

In spite of all these different rumors we are told that in the near future there will be plenty of sugar for everybody. However, it is evident that Uncle Sam appreciates the fact that there is a shortage of sugar, for he has put a temporary ban on shipping American sugar to Europe. If that is the case, is it not probable that Europe, as she did during war times, will turn again to honey, use up her left-over stocks, and then come to the United States for more? We do not know.

The Great War has left a big question mark, and at the present time the honey-producer in the United States is guessing what the market is going to do. That the price has gone up since the beginning of the season is shown by market quotations. Whether it may or may not go higher, no one can say. It is an honest question whether it ought to go higher, because the housewife hesitates to buy honey at present prices, saying that she can use jellies, jams, and molasses instead.

We are all a-guessing, and one guess is as good as another. We probably shall not know until September or possibly October just what is going to happen.

Those who feed their bees for winter would do well to lay in a stock of sugar when they can get it. The Government will not and can not this year divert sugar from other uses to benefit the beekeeper.

Later.—Since the foregoing was written and just as we go to press, our sugar shortage has been relieved, and we are advised that there will be plenty of sugar for every one in from 30 to 60 days.

IN this day and age when great syndicates are owning and operating from two to ten thousand colonies of bees it would be idle to say that this

man or that man is the biggest beekeeper in the United States or the world. Last year, when prices on honey were up to the peak, one concern took \$50,000 worth of honey;



Fig. 1.—One of Harry R. Warren's apiaries at his home ranch near Yerington. The regular honey flow had not started. As soon as honey comes in with a rush, the working forces of three hives will be turned into one, and at the same time all the supers will be put on one hive. See Figs. 3 and 4.

and large numbers of individual beekeepers in the great West harvested from \$10,000 to \$20,000 worth. At a later time I shall have something to say about these men and their methods.

For the present I propose to jump over into Nevada and tell you something about one of the most extensive producers of comb honey, if not the most extensive, in the United States. He is a wizard at the business. I refer to Harry R. Warren, whose headquarters are located at Reno, Nev., but whose bee operations, centering at Yerington, radiate hundreds of miles in all directions. He is now operating 70 apiaries with an aggregate of nearly 3,000 colonies. He has been making increase and buying combless packages of bees and hiving them on frames of brood and foundation. Indeed, he had the nerve last fall to turn in an order for 3,000 two-pound packages of bees, with queens, for which he was to pay \$15,000. He has already had delivery of about 1,200 packages. These two-pound packages, or "baskets," as he calls them, he figures will more than repay their cost in comb honey.

This man Warren and his brother are operating hundreds of acres of alfalfa for

NEVADA COMB-HONEY WIZARD

Man who Took \$22,000 worth of Honey Last Year, and now Expects to Harvest 10 Carloads Comb Honey

By E. R. Root

honey, hay, and alfalfa seed. They have three big tractors, two big threshing machines, seven automobiles, five of which are two-ton trucks, besides big teams of horses and agricultural machinery. The entire force at present consists of 25 people. Mr. Warren himself gives his time to the bees while his brother is working the ranch. Such extensive operations could not be carried on without a good foreman; and they have one such in the person of a returned soldier, an experienced beekeeper, by the name of Truxton V. Damon. I hope to show his picture, as well as that of Mr. Warren, in our next issue.

What is the secret of Warren's success? Any man, in order to succeed in any kind of honey production, must be a believer in strong colonies. Mr. Warren is one who not

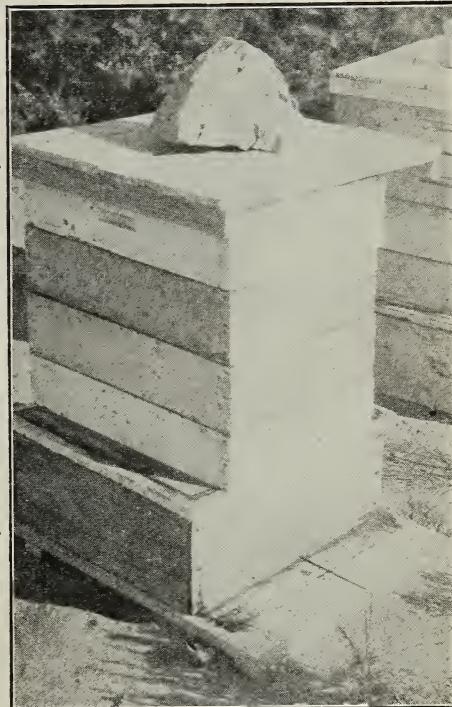


Fig. 2.—One of the typical Harry Warren comb-honey colonies. The lower brood-nest is nearly square, filled with shallow frames. The space on each side is covered with boards, leaving the supers (eight-frame) directly over the center of the brood. Mr. Warren prefers the shallow brood-nest to either the eight- or ten-frame Langstroth hive. While he operates the ten-frame Langstroth, he uses the eight-frame comb-honey supers exclusively. As there is little or no rain in his locality, no special protection against rain is needed.

only believes, but proves it by his crops, that the average strong colony, good enough for most beekeepers, is hardly half as strong as he would have it. Perhaps most beekeepers would call him a crank, or crazy on the subject; but when it takes a stepladder to lift off the filled supers of comb honey from some of those triple-strong colonies, one is forced to believe that there is method in his madness.

With so many bees located hundreds of miles apart, in 70 yards, it is impossible to give each individual colony all the atten-

brood hatches out, may or may not produce some honey. The one colony with the working force of three queens, one would naturally think, would swarm; but the flow from alfalfa is so strong that swarming is cut out. This enormous force of bees from three queens goes right into the comb-honey supers—they have to, for where else can they go? As the bees fill the supers, empties are added. At the end of the season or at the fourth and last trip the crop is taken off.

It will be apparent that, when the forces of three colonies are thrown into one at the



Fig. 3.—Figs. 3, 4, and 5 represent three different apiaries of Mr. Warren after he had thrown the working forces of three colonies into one. Notice the gaps between the hives. From some of these colonies he took 18 cases of comb honey at \$5.50 per case, and one can of extracted honey, making a total production of \$111 per colony, or as Mr. Warren says, a net profit of \$5.50 per minute for help and manipulation in the harvesting. It should be remembered that this \$111 per colony was the maximum yields, and was also the product of three queens and three colonies. One-third of \$111 would be \$37.00 per colony, which, it will clearly be seen, is not out of the range of possibility.

tion it requires; nor is it necessary, by Mr. Warren's system. He, with his helpers, visits his yards three times in the season at intervals of 30 days, spending five minutes at each hive. At the end of the season a fourth trip is made to remove the honey. The colonies are set off in groups of three. At the approach of the harvest the working forces of all three are thrown into one colony. The average beekeeper, if he owns 3,000 colonies, might think that that was another crazy notion; but let us see. Probably two of the colonies out of the three will be a little below par. Just before the harvest opens he shakes all the bees of the group in front of the strongest hive, giving all the sealed brood he can to the one colony. The rest of the brood from the two hives below par he gives to the colonies that are run for increase; and these later on, when the

beginning of the harvest, there will be a two-thirds reduction in the numerical colony count. In other words, 3,000 colonies will shrink down to 1,000. Perhaps some will argue that the 3,000, each with its individual queen, would produce as much honey; but Mr. Warren says not.

As to whether this plan would work with the average man and in the average locality I have my doubts; but that it works with Mr. Warren in his locality there can be no doubt, if the statement of his men and of the railroad agent who ships the honey can be believed.

By referring to Fig. 2 you will see how Mr. Warren starts out. The Flory brood-chamber, which he prefers nearly square, is shallower than the regular Langstroth hive. As it is wider than the supers, the space on either side is covered with a strip of wood.

Mr. Warren believes that an eight-frame super will be filled out better than a super the full width of the brood-chamber. However, he started with the eight-frame super and continues to use it.

In our next issue I hope to show pictures of Mr. Warren and one of his crews as he goes from yard to yard. At that time I will go into further details as to how he manages with so large a number of bees in 70 different yards. In the meantime do not overlook the fact that there are 25 helpers to take care of the ranches, doing the farm-work as well as the beework.

At the time I was at Mr. Warren's place he was going from yard to yard in a Ford touring car carrying along his helpers. Two of them manipulate the colonies. One keeps the record while Mr. Warren directs what to do with each colony or group of colonies. In this way the master genius of the whole system of apiaries tells what to do with each hive. What that wizard is able to do will be seen by some of the pictures of the piles of comb-honey supers that reach clear above the height of the men so that boxes or stepladders are needed to put on and take off the supers. So high are the piles, indeed, that props are needed to keep them from tipping over. See Figs. 3 and 4. (Dr. Miller, please take notice.)

Do not rush into Nevada, because bees on combs can not be moved into the State. Mr. Warren is connected with the Union Land and Cattle Co. at Reno, and manager of the subsidiary company known as the Union Honey Co. The two companies own and control hundreds of acres of alfalfa. It would be impossible for an outsider to en-

croach on Mr. Warren's bee-ranges, because the whole region is controlled by the Union Land and Cattle Co., and this company has given exclusive rights to the Union Honey Co.

What I have told seems almost like a



Fig. 4.—A view of another of the yards of Mr. Warren manipulated on his system, the same as shown in Fig. 3. The view in the background shows one of his five automobile trucks for carrying supers, filled and unfilled, from yard to yard.

fairy tale; but let me tell you, dear reader, I have seen some of the things I have described, and for the rest I take the testimony of reliable witnesses, Mr. Warren's foreman, and the railroad station agent who ships a large part of the honey. More anon. In the meantime don't ask questions till I have told the whole story.



Fig. 5.—This is still another yard operated on the Warren system. The spaces between the hives, as also shown in 3 and 4, indicate that one or two hives on either side are shaken into one hive. The result speaks for itself.

WHEN left to themselves the bees attend to the rearing of their queens in their own way; but when their owner steps in and takes the reins into his own hands he can so guide the actions of the bees as to attain the end he is striving for, that is, a strain of bees that will gather more honey. Bees in their natural state are not such great storers of honey. Even an improved strain of honey-gatherers will soon return to the common level if left to their own devices for a few years.

But once the beekeeper masters the ins and outs of queen-rearing he has it in his power to increase the honey-gathering qualities of his bees by queen-rearing. A queen-rearing system that goes no further than using all or sundry cells that are discovered at swarming time to replace old queens does not go very far, the only gain being young queens instead of old ones. In fact, it is a bad plan because it tends toward breeding a swarming strain. [Some question.—Editor.]

Queen-breeding implies the constant breeding from the best to replace those be-



Fig. 1.—This twin mating-box is 7 1/4 inches in height, 10 inches in width, and 11 in length.

low the required standard. Every beekeeper has had a colony whose surplus has amazed and delighted him. He would say, "If only all the others were like that, then beekeeping would be a good game." Every beekeeper can and should do his own breeding unless he is prepared to buy queens from a breeding specialist for all his colonies, not only once but from year to year; for other-

MODIFIED PRATT SYSTEM

A Few Modifications Overcome the Objections to the Swarthmore System of Queen-rearing

By W. B. Bray

wise the surrounding bees will gradually but certainly cross with his till he has lost the strain he bought.

It is now somewhat over

10 years since the late E. L. Pratt, writing under the name of Swarthmore, made public his methods of queen-rearing. The new system attracted a great deal of attention because of the improvement in appliances and the economy in bees and time. A set of booklets was published, descriptive of the system—namely, "Increase," "Baby Nuclei," "Cell-getting," and "Simplified Queen-rearing." In "Baby Nuclei," Pratt recommended using extremely small nuclei, with combs about the size of sections; but later a larger size was found preferable and the twin mating-box came to be used. Pratt subsequently, in "Simplified Queen-rearing," endorsed this change.

The Swarthmore system has been severely criticised in this country; but in some cases I am sure that the critics have not given it a proper trial. I would point out here that a system that includes grafting of queen-cells requires of the operator both a keen eye and a steady hand. On referring to two of the latest American works by authors of world-wide repute, I find that Pellett's "Profitable Beekeeping" does not even mention the system. "Beekeeping," by Dr. E. F. Phillips, contains a description of it; but the author is rather non-committal as to its merits. He says: "Considerable variation in the success of this method has been reported, and there are numerous phases of this question on which more light is needed. Some strains of bees seem to be poor for this purpose. On the whole, however, when directions are carefully followed, a good number of fine queen-cells will usually be obtained." From this it would appear that the system is not an infallible success.

I bought the books and studied them with such interest that in 1910 I bought the appliances and began using the new methods. Tho my first few attempts proved to be failures I was not satisfied to give it up. Pratt wrote in such a convincing and optimistic manner, and gave such attention to details, that I was sure the fault lay with me. After a little practice I found the secret of success, and with a few modifications I soon had the system working to my satisfaction. For the benefit of any who have been unsuccessful, and those who would like to try their skill at queen-rearing, I will explain where I have adopted or modified the Swarthmore methods.

I use the Swarthmore swarm-box which is made to hold five frames. It has a wire-cloth bottom, and a cleat at each end raises it to give ventilation beneath. The lid has

two long slots exactly above the second and fourth combs (which are not used). Only three combs are used in it—one in the center and one at each side. The slots are occupied by special bars called cell-bars, which have sixteen 5/16-inch holes in which the wooden cell-cup bases are securely held by the flange. A special machine can be procured to press out the waxen cell cups on these wooden bases; but I prefer to make them by the dipping process. I use wooden

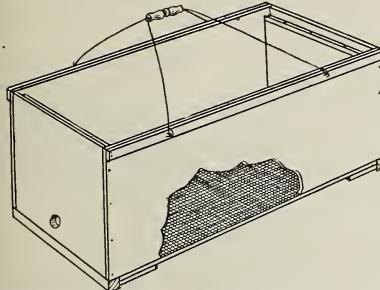


Fig. 2.—Swarthmore swarm box with wire-cloth bottom raised to give ventilation beneath. See lid, Fig. 3.

sticks about the size of a wooden hayrake tooth which I first soak in water and then dip in melted wax, heated to about 160 degrees, to a depth of half an inch. As the wax cools they are dipped again to a lesser depth, and so on for a few more times. The resulting cell has a fine edge, and I find it best to put fresh ones on the wooden cups every time they are used. So much for the apparatus, and now for the method.

Two bars of cell cups are fitted into the lid. Three combs of new unsealed honey, one of which must contain some new pollen, are placed in the box. Great care is necessary to see that no brood nor eggs are in any of these combs. About half a cup of water is sprinkled into one comb. In the middle of a fine morning, when a gentle flow of nectar is on, I take the box to a good colony that has a two-year-old queen and is so strong that it can spare the required bees for a night. Bees from a younger queen will do, but they are not quite so keen on starting cells. I do not wish to get the queen in the box, so I locate her and put her to one side. I push the combs in the swarm-box over to one side, then in the empty space I quickly shake in the bees from five or six well-covered combs, space the three combs again properly so that, when the lid is on, the two rows of cell cups will be above the blank spaces, and finally carry the box to a sheltered spot or to the window in the honey-house.

It is just here that Pratt's directions are incomplete. It is after he has detailed the method of grafting that he says the box must be covered with warm material and the room darkened, the inference being that this was unnecessary till the grafting was finished. As soon as the bees are in the box,

warmth and darkness are important. The bees, being queenless and broodless, cluster on the cell cups, polishing and warming them. Every little while the "queenless roar" will be heard in crescendo and diminuendo, which augurs well for success. When the bees are brought in I put the box on a bottom-board in case I wish to shift it. I lay a cloth over from each side and allow it to touch the ground so as to shut out the light at the bottom of the box, yet far enough away to allow the air to circulate. When I come to graft the cells I am very careful to remove the covering from the top without letting any light fall underneath at the sides. The light would cause the bees to rush to the bottom, and it would be some hours before they would again cluster on the cell cups.

I usually leave the bees five or six hours before grafting; but when all the conditions have been favorable I have given them barely half an hour. From my breeder colony I get a comb containing larvæ which are so small they can barely be seen were it not for the food that surrounds them. It requires good eyesight to spot the youngest larvæ, and a steady hand to lift them out on the grafting needle and place them in the cell cups without damaging them. The bees reject any damaged ones. I manage to pick up some food with the larva and de-

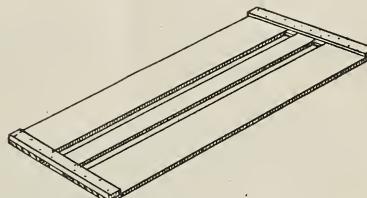


Fig. 3.—Lid of swarm box with two long slots for cell bars.

posit it in its new quarters with enough food to give it a comfortable appearance. The first ones are being fed before I have finished, and a contented hum takes the

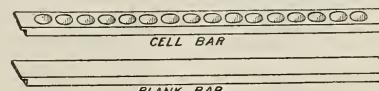


Fig. 4.—These bars fit into slots of swarm-box lid.

place of the queenless roar. I generally get from 25 to 30 cells accepted. In the morning following, it is easy to pick out those which have been accepted. They are nicely rounded and drawn down with a new edge of white wax. Each larva can be seen floating in a plentiful supply of royal jelly. The failures are either empty or started in a half-hearted way.

The queen-cells being started, the next thing is to get them finished and incubated. Pratt gives a method of using a queenless and broodless colony for a few days, after

which the queen and brood are returned, the cells being kept above a queen-excluder till hatching time. I get all my cells finished above queen-excluders with a laying queen below. I select a colony with a good patch of brood in the second story, make sure the queen is below, and put an excluder between the two. I remove a side comb from the super and make a space between two combs of brood containing eggs or unsealed larvae. This space is for the frame containing the started queen-cells, and I prefer two colonies thus for each batch of cells, about 16 being quite enough for one colony to finish. For convenience in getting at the cells, Pratt used a frame with the top-bar dropped two inches, the cell-bar resting on the lugs and becoming a temporary top-bar. I prefer to sacrifice a little convenience here and have the cell-bar right down among the brood. I believe the cells are better cared for there, and a cold spell will not cause them to be deserted. For this purpose I keep a number of special combs. They have a two-inch strip blank at the bottom, and grooves are cut across each end-bar so that when the cell-bar is inserted there is enough clearance to the bottom-bar to give room for the queen-cells. Under natural conditions queen-cells are practically always reared in a queen-right colony, and I believe that my method is as near the natural one as we can get.

The morning following the grafting, the cells are put out as above, and 10 days afterward they must be attended to, as they are then due to hatch. The bees in the swarm-box are returned to their hive, or they may be used for making nuclei or for increase. It is better to use fresh bees than to use them a second day for more cells. Likewise it is not advisable to use bees from the

same colony continuously, but rather at intervals. Where the cells are being finished there is a likelihood of other cells being built. These must be destroyed, as stray virgins upset the nicest plans. The same colony can be used again later on, after allowing the queen to put more brood above or lifting up two suitable combs.

The queen-cages supplied with the Swarthmore outfit were too small, too many virgins dying in them for want of room. I changed to a larger size (wire both sides), 24 of which fit into an ordinary Langstroth frame. But I seldom cage the cells if I can avoid it, as I find it is more trouble to introduce a virgin, while a ripe cell can be used under any conditions. It is true that the virgins occupy the nuclei for a longer time; but the less fussing and the smaller loss more than compensate. I have used the twin mating-boxes as twins for some years, but I now prefer them as singles, as too often the queens change sides. I have made my own frames for them with proper top-bars; and to get them filled with honey or brood I put them on a special super over a strong colony. This super is six inches deep, and is divided in two, crosswise, so that it holds ten frames in each end. I draw on these supers for honey at all times. For starting the nuclei I prefer to use sealed brood, as the bees will locate afresh much more readily. Only a ripe queen-cell can be used when starting with brood. Starting with honey only, bees from a swarm are best of all. I allow the first queen to get a good patch of brood well advanced toward sealing before I remove her. This gives the nuclei a good start. They must at all times be kept well supplied with honey, else they are inclined to swarm out, even deserting brood.

Barry's Bay, N. Z. W. B. Bray.



THE article on page 463 of Gleanings for 1918, describing queen cages in which the bees of the colony to which the queen is to be introduced gain

access to the queen a day or two before she is automatically released, brings to mind the old saying, "There is nothing new under the sun," for here is merely an old principle re-discovered.

Cage "A," page 464, is so nearly like the Chantry cage, which I illustrated and described, after years of previous use, on page 138 of the "Review" for 1907, that it looks as tho the inventor had at least a hazy memory, subconscious if you will, of seeing the article in question, the idea no doubt coming as a new inspiration.

CAGES WITH CHANTRY FEATURE

*Idea Used Long Ago by Chantry.
Thompson Made Further Application and Improvement*

By E. F. Atwater and J. E. Thompson

This Chantry cage (and I must call the cages there shown Chantry cages) was first shown to the writer by Mr. Chantry, then a practical bee-

keeper of Iowa and South Dakota, in the early spring of 1902 or 1903, and has been extensively used in introducing many hundreds of queens in our apiaries here.

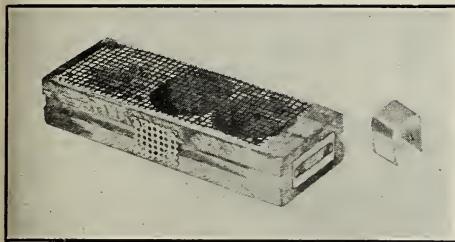
Mr. Chantry found this cage to introduce nearly 100 per cent of the queens successfully, but in our experience, such results have not been reached.

The idea of giving the bees access to the queen thru a piece of queen-excluding metal was even earlier; and, if I am not mistaken, was described in the "Review" many years ago, as the invention of C. W. Costellow. In

this early cage, the release of the queen, or the giving the bees access to her, thru the perforated metal, was not automatic.

Later, on page 342 of the American Bee Journal for 1910, Vincent Asprea of Italy describes a cage embodying the same valuable principle, but, like the Costellow cage, it was not automatic in action, as it required that the hive be opened once or twice after caging the queen therein.

However, the combination of the candy principle with the bees eating their way to



Improved Benton cage with U-shaped tin removed, showing perforated zinc at outer end of passageway.

the queen thru a short passageway, guarded only by a bit of queen-excluding metal, then, a day or two later, after the bees have become acquainted with the new mother, releasing her by eating the candy from a longer, unguarded passageway, is distinctly the invention of Thos. Chantry; and I feel should be so named, unless the principle can be shown to have been used by others at an earlier date. The principle is of real value.

E. F. Atwater.

Meridian, Idaho.

Thompson's Reply to Atwater.

It is impossible that I could have had a hazy memory of anything written in the Beekeepers' Review 12 years ago, since I never saw a copy of that magazine until 1912. I used to keep queens for months by caging them in spiral cages along the top-bars of the frames, and after a few days replacing the tin with a strip of perforated zinc.

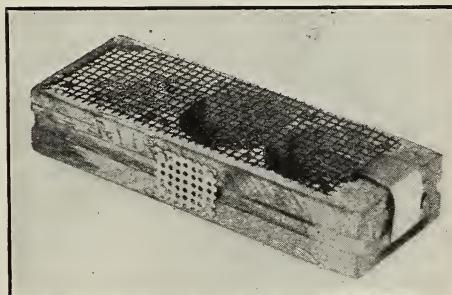
This is how the cages came to be made: There was a colony that refused to accept a cell or a queen in the regular way, so I took one of the caged queens and released her on the top-bars of the frames. She then fanned her wings for joy, and the bees did likewise. She was accepted, and, being fed by the bees, was found laying the next day. So it occurred to me that if a queen is more readily accepted after the bees have mingled with her, why not make an introducing cage to admit the bees before the queen was released? Accordingly, I have since that time used the idea in various cages I have made.

In the article to which Mr. Atwater refers I find this statement: "One fault of the Chantry cage is that occasionally a queen is so stupid that she can not find the way out of the cage when the candy is

gone." The reason for this, I have found, is that the grain of the wood and also the vertical position of the cage prevent her leaving. This difficulty may be overcome by burning out the entrance to the cage and hanging the cage horizontally. Yet an entrance with flat walls is much more satisfactory than one with rounded walls, even when the latter is burned out; for in testing out these cages it has been my experience that over half of the queens refuse to leave thru a cylindrical hole. For this reason I prefer a passageway with four straight walls rather than a cylindrical one.

The Improved Benton Cage.

The principle of these cages I have also applied to the Benton cage. For sending out queens thru the mails the Benton mailing and introducing cage shown in the cut has been tried out and has proved successful. The cylindrical passages at each end of the cage are filled with candy. The shorter one has tacked over it at the outer end a piece of perforated zinc covered with a removable strip of tin bent in the shape of a U. The screen covering the face of the cage is just short enough for the admission of one arm of the U-shaped tin. This arm slips into the cage and covers the inner end of the short passageway, and the outer arm of the U strip covers the perforated zinc at the outer end of the passageway where it is tacked in place. Thus in the shorter passageway both surfaces of the candy are covered so that the bees will be prevented



Same cage with U-shaped tin in place. Perforated tin on side of cage may be removed when putting queen and attendants in cage.

from getting to it while in the mails. For the admission of the queen and bees, a small opening is made in the middle of the side. After the queen and bees are caged, the opening is closed with a piece of tin. On arrival at the apiary, when the queen is ready to be introduced the U tin is removed and the cage placed horizontally on the comb just above the brood, the cage being attached to the comb by means of a nail or bent wire. In a short time the bees will have eaten thru and gotten to the queen, thus allowing the caged bees to be released, while the size of the perfora-

tion in the zinc prevents the escape of the queen.

At the opposite end of the cage is a longer passageway, the outer end being covered with a strip of cardboard having a quarter-inch slit thru the middle. This slit allows the bees to gnaw more readily thru the pasteboard to the candy and thus liberate the queen. Instead of the slitted cardboard it would probably answer quite as well to use a piece of cardboard so narrow that the bees could easily get at the candy at either side of the strip.

When filling the cage the hole should be completely filled with the candy so that the candy reaches clear to the pasteboard, touching it, because if the candy is not in contact with the pasteboard, the bees will not gnaw thru; but if the damp candy touches, then some of the sweetness soaks into the paper so the bees more readily gnaw thru.

For the bees to eat thru the candy of the longer passageway requires a longer time than to eat the candy of the shorter passageway; and therefore by the time the queen is allowed to escape thru the long passageway the bees of the colony have

been entering the cage at will thru the perforated zinc, and have thus become so well acquainted with the queen that there is but little danger of their balling her when she finally leaves the cage.

This same plan may be used by the bee-keeper on the arrival of an ordinary cage thru the mails. If he has no candy available, and yet wishes to introduce in this way, he should take the cage into the apiary house, leave one end of the cage closed, and over the other end tack a perforated strip, thus allowing the escorts to escape and leave the queen alone in the cage. As soon as the escorts have left the cage, cover the perforated strip with the U-shaped tin and introduce. At the end of 24 hours remove the U-shaped strip and slip between the perforated strip and the cage a piece of newspaper daubed in honey, and replace the cage.

Queens without escort are introduced much easier, for then they are fed by the nurse bees, and are often ready to lay when released; and, if the queen mixes with the bees naturally, she does not become frightened and thus become balled.

Medina, Ohio.

J. E. Thompson.

THE introduction of queens has been one of the serious problems for beekeepers in all times. We have become accustomed to losing a large percentage of queens in introduction and have educated ourselves to expect this and take the heavy loss as a matter of course.

Frequently we hear people say: "I introduced 50 queens with the common mailing cage and lost only 10"; or, "I introduced 100 queens by the smoke method and lost only 15"; or, "I introduced a large number of queens by the honey-bedaub method and lost only 25 per cent." We are reminded of the story of the man, who said: "The way to teach your boy to swim is to just catch the kid and throw him into deep water, and he will swim all right. I taught my seven sons just that way and I lost only one out of the seven."

Now, then, if we lose any queens in introduction, we should search for the reason and attempt a remedy, and not be satisfied until we have the hundred-per-cent method.

Upon sending out questionnaires and upon investigating the subject, I have been astonished at the large loss of queens thru introduction. One experienced bee inspector says, "The average loss with all classes of beekeepers is 50 per cent." A man in California informed me that out of twelve purchased he successfully introduced only three.

Another large honey-producer, who mostly rears his own queens, stated that he lost by introduction fully two-thirds of the queens received thru the mail. Is

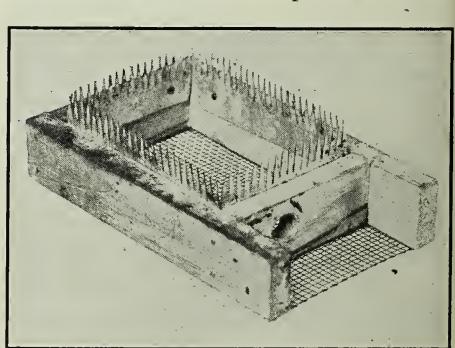
it not time to look for better methods of introduction?

In years past when queens could be purchased for 40 cents and upwards the loss

SAFE INTRODUCTION of QUEENS

Good Results with Push-in-the-Comb Method. Not the Average Fifty per cent Loss in Introduction

By Jay Smith



Smith's Push-in-the-comb-cage with saw teeth of heavy tin.

was not so heavy, but more and more people are realizing that a good queen is a valuable asset and should be introduced with greatest care. Very often queens are

accepted after being balled and injured. They will live thru a honey flow and the colony will produce no surplus. Then the queen is superseded. In the past year, parties have reported yields of 200 pounds and upward from the colonies containing the best queens; and from the poorest colonies, nothing. It can be readily seen in that case that the good queens might be worth \$50 each and the poor queens nothing. No matter how good a queen originally, if she is injured in introduction she may be a complete failure.

Methods of queen introduction come and go. In fact many of them come and go a good many times. People are making new discoveries and finding sure methods for introducing queens; but if they read back in some early edition of Langstroth, Quinby, or Doolittle, they will find these same methods were used and discarded 30 or 40 years ago.

In reviewing the older methods and experimenting on all the new or so-called new ones, I find but one method which has stood the test as being practically certain, and this is the method known as the "Push-in-the-comb-cage" method. In his book, "Scientific Queen Rearing," Mr. Doolittle says, "To introduce a queen that has come to me from abroad or one which I consider of more than ordinary value from my own apiary, I proceed as follows"; and he then describes the "Push-in-the-comb-cage." Mr. Doolittle also states that with this cage "Not one queen in one hundred is balled."

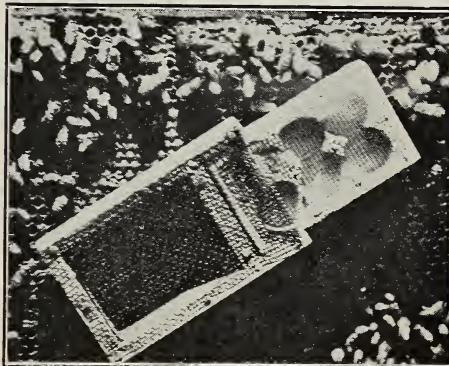
Mr. Hutchinson in "Advanced Beekeeping," recommends this method very highly and the "A B C" says, "Reports of this method of introduction have been uniformly favorable." Others who have used the "Push-in-the-comb-cage" give similar reports.

Now the question naturally rises, "Why then is this method not at present universally used?" The answer is not difficult to find. The common "Push-in-the-comb-cage" was merely a screen wire with ends bent down and pushed into the comb, and it had a number of drawbacks which made it unpopular. Sometimes in pressing the cage into the comb, the corners were not beettight, in which case the queen came out too soon and was killed. Sometimes this cage would come loose, or drop out of the comb, thus releasing the queen too soon. Sometimes the bees would burrow under this wire cage in too short a time; but the greatest drawback of all was the difficulty and inconvenience experienced in getting the queen into this cage.

The cut illustrates a cage that we have used in our apiary in a modified form for several years and up to date has not a single failure to its discredit. It is a "Push-in-the-comb-cage" but overcomes the objection to the old "Push-in-the-comb-cage." The saw-teeth which are pushed into the comb are made of heavy tin, with the points one-eighth of an inch apart, and these are

made just the length of a worker cell. When this is pressed into the comb, the points of these teeth become firmly embedded into the old cocoons in the bottom of the cells, making it impossible for the bees to gnaw their way under this cage. Being made of heavy tin, the teeth cannot get out of alignment, and consequently their functioning is certain.

To get the queen into this cage is a very simple matter. All that is necessary is to remove the perforated tin on the mailing cage, and drop the mailing cage into the



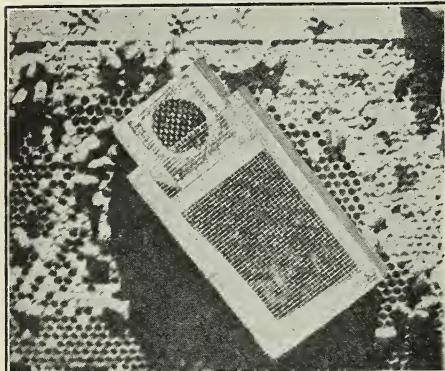
When introducing, shipping cage is inserted into end of Smith's cage as shown in cut.

upper part of the introducing cage, when the holes of the two cages come opposite, and the queen and bees immediately run down into the introducing cage on to the combs. If the six-hole cage, as illustrated in the cut, is used it is a perfect fit. If a three-hole cage is used, a small block of wood is inserted to take up the extra space.

An old black comb should be used as it contains cocoons in the bottom of the cells, so the bees cannot gnaw under. If this can be pushed into the comb over a small patch of brood and honey, the condition is ideal. However, in colonies long queenless or in nuclei very frequently there is no hatching brood, but this seems to work just as well. When the bees and the queen get down on the comb, they at once take the odor of the hive and become a part and parcel of the colony. The colony odor is in the combs.

While I do not recommend any method as sure with laying workers, yet I have introduced a number of queens to laying workers with no loss. This method has several other advantages. You can always tell before you release the queen from the cage, whether or not she is accepted; for, if the bees are kindly disposed toward her, they will not attempt to ball her thru the wire meshes, but will feed her and she will lay eggs, which can be readily seen thru the wire screen. When this is the case, the cage may be pulled out and the queen released at once. In case this cage is taken out too soon and the bees are inclined to

ball the queen, it can be seen at once and the queen recaged; while with the other methods, where the queen is automatically released, if they ball her when the bees-



If the wood in the cage is made a little deeper, the cage may be used with a queen-nursery cage, by inserting a piece of wood to take up the extra space.

keeper is not around she would be killed. One can leave the mailing cage with the cardboard over the candy until the bees gnaw this out and release the queen, or he

can put a wooden plug over the candy and release the queen himself. I do the latter.

This cage works equally well with virgin queens, and they can safely be introduced to full colonies. If the wood in the cage is made a little deeper it will accommodate the regular Queen Nursery cage. In this case the wooden cell cup is taken out of the cage, and the hole it occupied placed over the hole in the "Push-in-the-comb-cage." A small piece of wood takes up the extra space and also covers the candy in the nursery cage. When desired, this wooden plug may be taken out and the bees allowed to eat out the queen; or the beekeeper may release her himself. I have used the last method in introducing virgin queens to nuclei and find it by far the safest and easiest method known.

Another point in its favor for virgin queens is the fact that the virgin queen is in no way injured by remaining in this cage a number of days. If bad weather should come on and queens be delayed in their mating and one has other virgin queens hatching, the second virgin may be confined in this cage until the first one has mated and been removed from the nucleus. Then the wooden block may be removed and the bees allowed to eat out virgin number two.

Vincennes, Ind.

DURING the last ten years summer field meets of beekeepers have come to be quite the fashion. While they do not take the place of winter conventions they perform an important service in the way of actual demonstrations in the apiary. From a social standpoint they are invaluable. The picnic feature stimu-

SUMMER FIELD MEETS

*How they Make Better Beekeepers
and How they Eliminate Bee Diseases*

By E. R. Root

lates not only good feeling but a spirit of co-operation. If the beekeeper receives no other benefit, the knowledge he gets concerning prices and the crops available at a time of year when he is getting ready to sell his crop will more than pay for the cost and time in going to the meet. But this is not all. Mr. Bee-

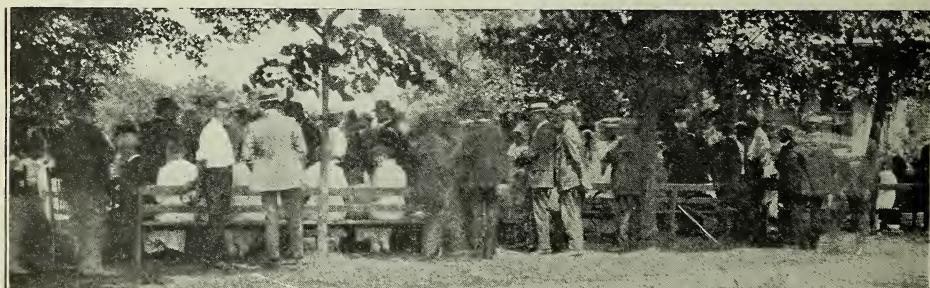


Fig. 1.—Field meet at the home of C. B. Howard, Harts Corners, N. Y. This was the largest gathering of beekeepers at any field meet I attended a year ago. Between three and four hundred were present from all parts of the State. It was impossible to get a general view; but the picture shows the crowd forming a circle around Dr. Phillips who was then speaking. Beekeepers came from all over the State in automobiles, returning the same day.

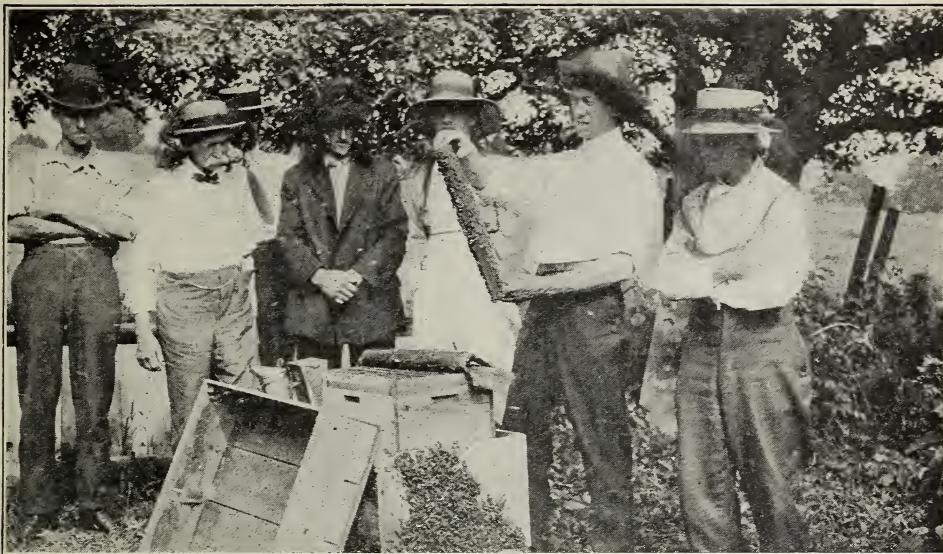


Fig. 2.—This shows Geo. H. Rea, the man holding the brood-comb, giving a demonstration at the apiary of M. H. Fairbanks, Homer, N. Y. Mr. Rea was covering the entire State, telling the farmers how to keep bees better and how to clean up bee disease.

keeper by seeing the work done learns the tricks of the trade, and particularly how to eliminate bee disease. No one is too old to learn; and I have yet to attend a field meet when I do not see and hear something worth while.

It was my pleasure to attend a number

of field meets a year ago this summer, not only in Michigan, mention of which has already been made, but in New York, which has as many up-to-date beekeepers to the township as any State except California.

One large meet was at East Aurora, N. Y., under the auspices of the Western New



Fig. 3.—This is a general view of the beekeepers present at the Canastota meet. Chas. H. Stewart, State bee inspector, is shown at the extreme left, middle row, sitting down. Next to him is Mr. Clark, of the firm of Doolittle & Clark; then following in order are S. D. House, Geo. H. Rea, Dr. E. F. Phillips, C. B. Howard, and A. H. Root.

York Honey Producers' Association, of which James H. Sprout of Lockport, N. Y., is president, and Howard Myers secretary. There were between 200 and 300 who sat down at the basket luncheon.

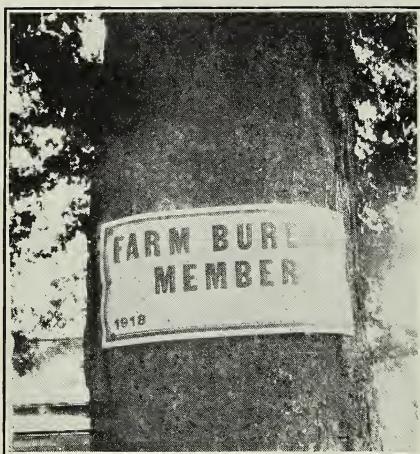


Fig. 4.—As one rides over the country he will see these signs on the trees in front of the homes of prosperous farmers—prosperous because the owner of the farm is a member of the Farm Bureau, which sends out extension workers who make it their business to inspect the farms, offering suggestions in regard to the treatment of the soil and how to get the most out of it.

The next meet was under the auspices of the State organization and was held at the home of C. B. Howard, near Hayts Corners, N. Y., at the foot of and between the two

lakes of Seneca and Cayuga. Mr. Howard is one of the best beekeepers in the State, president of the New York State Association of Beekeepers' Societies, and owner of five or six hundred colonies of bees.

Another meet was that held at Canastota, at the home of A. H. Root, brother of L. C. Root, author of Quinby's New Beekeeping. The attendance was not as large as at the other field meet; but from the standpoint of enthusiasm it was the equal of any of them.

The next field meet was at the home of M. H. Fairbanks, Homer, N. Y., Aug. 5. This was an extension workers' meeting. Fig. 2 shows Geo. H. Rea, then of the Bureau of Entomology, Washington, and formerly bee extension worker in North Carolina, and State bee inspector of Pennsylvania, but at that time extension worker in New York.

The next series of field meets, Dr. Phillips and Mr. Rea helping, was in Cortland Co., with the regular field bee extension worker, Allen S. Merchant of Cortland Co., N. Y. Mr. Merchant kindly carried us thru the country, among the farmer beekeepers where foul brood had been reported.

Fig. 4 shows that the State of New York is welcoming the Farm Bureau extension workers who take up general agriculture, and, indirectly, bee culture. As soon as a farmer becomes a member of the Bureau a tag is fastened in a conspicuous place on the farm. Under the regular Leaver law the extension workers are performing wonders. Every county in every State in the Union should have an extension worker.

Before leaving the State I must show John Demuth's apiary at Pembroke, N. Y. (See Fig. 5.)

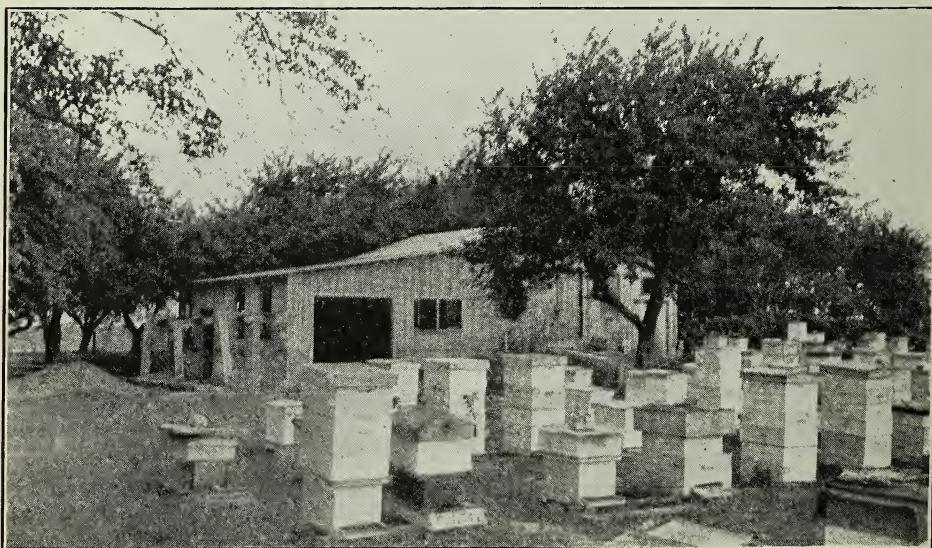


Fig. 5.—This gives a view of one of the pretty yards owned by John Demuth, a leading beekeeper of Northwestern New York, located at Pembroke. His specialty is comb honey. He is one of the few who needs no extension worker or bee inspector because he is clear up to date.


ANNE LESTER AND DADDY LOWE, BEEKEEPERS


By Grace Allen—Chapter VII

“**T**RUE taste is forever growing, learning, reading, worshiping, laying its hand upon its mouth because it is astonished, casting its shoes from off its feet because it finds all ground holy”—Daddy Lowe was reading aloud, to the clicking—then resting—of Mrs. Lowe’s knitting needles; while Anne, big-eyed with the intensity of her listening, sat with her knitting in her lap, looking off across the world. The old man read on.

“And it finds whereof to feed, and whereby to grow, in all things; for there is that to be seen in every street and lane of every city—that to be felt and found in every human heart and countenance, that to be loved in every roadside weed and moss-grown wall, which, in the hands of faithful men, may convey emotions of glory and sublimity continual and exalted.”

Daddy Lowe laid down his beloved Ruskin and the three sat silent. The early August day hung hot and heavy.

“I wonder what Ruskin would have done if he had lived during this war,” Anne mused presently.

“He would have hated it,” the old man answered. “But if he had been young, he would have fought, I think. And if he had been old, he would have written things to feed men’s souls.”

Again they were silent, there in the deep shade of the maples.

“Daddy Lowe,” Anne began again, “are all beekeepers like you?”

“Bless you, no. Are all young girls like you?”

“Yes, I think so—just about. Only I like books more than most of them—and parties less. And country more and cities less.”

“And bees more and beaux less,” suggested Mr. Lowe.

“And old people more and young people less,” smiled Mrs. Lowe.

“Oh, I love everybody,” Anne declared, “almost. And you two most of all, after Robert. But I was thinking what a nice kind of work beekeeping is for nice men like Daddy Lowe, because it doesn’t take every minute every day. Hours like this are so lovely.”

“I have friends who say this way of living hasn’t made me rich,” the old beekeeper said quietly.

“Well, it has,” flamed Anne, “rich inside. Why—some people are so poor inside that their ideals are all ragged and worn. But you, you are rich, rich, rich.”

“One thing we have to be careful about, Anne,” Mr. Lowe said presently. “Those of us who care a great deal about books and quiet hours have much the same problem as the more energetic ambitious people have, that is, to maintain a poise, not too much

work nor too much leisure, but a quiet balance between the two extremes.”

“Well, you can certainly work hard,” Anne approved. “And you can get a lot out of leisure too.”

“You flatter me,” he smiled, adding, “It’s time I started showing off my working talents again. Anyone want to join the vain display?”

Before Anne could answer, she was waving a friendly hand to a passing car, as it crossed the one open space where the road was visible. “Theodore,” she explained. Then, laughing, “He goes right by when I’m in polite clothes, and drives relentlessly in when I’m working in the yard.”

“Then he’ll likely drive in tomorrow,” said Mr. Lowe.

And so he did. But only for a few minutes. He was taking Miss Katherine Clark to the train for a visit to friends in the city, and she wanted to say good-bye to Anne, to whom she had taken a great liking.

“I’m going to have such a good time!” she chirped in delighted anticipation. “I do love the city so.” She turned to Anne. “Do you really like all this?” she demanded, with a puzzled look at the work clothes and the stained hands and the moist face of Anne.

“Ask Theodore,” laughed Anne.

“She thinks she does,” he affirmed. “Can’t we persuade her she doesn’t?”

Katherine pointed an accusing finger at him. “Pluck the farming beam out of your own eye before trying to dig the beekeeping mote out of hers!” Then to Anne, “I’ve found out he doesn’t like farming a bit. Even Father says he ought to go back to the city. But he won’t—for some secret reason. Patriotism, I suppose.”

“No telling,” murmured Anne. The car started out.

“But he’s coming in Thursday to take me riding and to a ‘concert,’ the girl leaned out to call back. “Isn’t that nice of him?”

“Lovely,” agreed Anne, waving her good-byes and good wishes to the happy girl and a very red and very miserable Theodore. She watched quietly till they were out of sight, then turned back to her beekeeper friend and teacher.

“What had you started to say, Daddy Lowe?” she asked. “Something about planning right now for next season’s crop.”

With the fine courtesy that makes no uninvited comments, he again started to explain the next work to be done.

“You see, Anne, the only way we can get a maximum crop next summer is to have every colony in as perfect condition as possible when that flow comes. That calls for good wintering. That requires a lot of young bees this fall. To get them we need

a young queen in each hive. That's our next job."

Anne looked down the rows of hives. "It sounds like a big one," she sighed.

At the words Mr. Lowe sat down on a hive and looked at Anne gravely. "It does," he answered, "too big."

"To you, too?" surprised.

"For another reason, Anne. I don't like leaving Mother alone much these days. I believe—" a moment's steady consideration—"yes, I believe I'll let the requeening go this year, after all. Our queens are only a year old, anyway—and there are other things much more important than bees."

From the sudden sadness of his look, Anne turned her eyes. Something was there too much his very own to be watched. But after a minute she looked swiftly back.

"Daddy Lowe," she said in tender impulsiveness, "let me re-queen the yard! You stay at the house—with her."

There was protest, and insistence, but in the end Anne seemed to win. "Only," she conditioned, "please don't ask me to use artificial cell cups, and graft larvæ and things like that. I'm no grafter," with a steadfast attempt at gayety.

"I thought you'd enjoy that part," he said. "It's really fascinating."

"Maybe, some day. But not yet. I'm too green. Why couldn't I just kill all the queens—Oh dear, that's honestly what I hate worst of all!—and let each colony raise its own new queen?"

"You could."

"Your tone says, **But** something. **But** what? Would it leave them queenless too long?"

"It wouldn't be downright tragic, but it would be a little too long—a little too late. Three weeks to get a new laying queen, three more before any of her progeny emerge, and two more before they are flying. I don't mind a break like that in the latter part of the main flow or immediately after it. But for August, brood-rearing is better than queenlessness."

Anne sighed. "I thought that would be such a nice simple way."

"There is another objection to it. About a fourth of the yard this season produced less than the yard average. Don't you think—"

"Oh, of course! We've got to requeen them from our best producers."

"Well, if you really insist on tackling this job—"

"I really do."

"Then we'll compromise by requeening only those poor producers. You have mentioned methods you don't want to use—is there any especial one you do want to use?"

"There are so many ways to do everything a beginner can hardly decide which is best. It must take lots of experience to get the most out of reading."

"It takes lots of reading to get the most out of experience, too," he replied.

"But lately I read all about putting a comb of eggs flat across the top of a hive, and I thought that sounded like a cutie sort of plan. Did you ever try it?"

"Yes. That will do. I leave it to you," and he turned to go.

"Oh!" a little frightened. "You better find out first if I know how."

The man smiled. "If you don't, you'll either read or ask. You are a very conscientious young lady. But say your lesson over, if you'd rather."

"First," she began radiantly, dropping down on the grass in the shade, and patting the bench beside her for the old man to be seated too, "I'll pick for a breeder the queen whose workers gave the most honey, that is, if they are good-looking and well-mannered. I'll give them a nice empty worker comb right where the queen will lay in it. Then I'll choose some other big strong colony for the cell-builders, and make them—" tapping fingertips—"queenless—broodless—eggless. Then I'll take the comb of eggs from the breeder and scrape out the alternating rows of cells, each way, till—"

"Do that if you wish," interrupted Mr. Lowe. "Otherwise you needn't."

Anne opened her eyes in surprised protest. "I thought I had to, but anyway I wish to—I like the checkerboard picture in my mind. Then I'll lay it flat, on sticks or something, an inch or two above the top-bars of the cell-building colony. I'll put a shallow super on and lay a sack over the flat comb and down to the edges of the brood-chamber. Then up will come the nurse bees—poor little things with nothing down there to coddle—and before long there'll be royal jelly—Oh, do you think I had better feed them a little every day?"

"I don't think you need to—the it helps. We're cutting down the work right now. Use your own judgment."

"That's flattering, but embarrassing. Perhaps it's educative, too! Well, that's all. Except when the young queens are most ready to come out, I'll have to execute the undesirable queens we want to get rid of, and give each colony a cell—in a protector, I suppose. Or will I have to put them in nuclei first?"

"Put the ripe cells directly into the colonies. Then make up nuclei for the cells that are left over; that will give you queens to replace any that don't get accepted or mated." The old man rose. "It's in your hands, Anne. And you are a great comfort, child."

Anne rose too. "Daddy Lowe," she said in her wistful young way, "I do hope Mrs. Lowe will get stronger—and that she'll get a letter soon from her soldier boy. Surely one will come soon. And perhaps that will help."

"Perhaps," he answered gently. "Perhaps."



FROM THE FIELD OF EXPERIENCE

SEASONABLE SUGGESTIONS

Management in Localities both With and Without a Fall Honey Flow

Standing at the threshold of August, what apicultural memories it brings! The season for the white honey from clover, raspberry, thistle, and basswood has passed, and with it the recollections of a season where the supers did not yield enough honey to wet the extractor; and, as we are most liable to remember extremes, my thoughts turn also to seasons of bumper crops when hard work and the strain of oversight have made it a pleasure to know that there is no more honey to extract.

By August 1 the white-honey harvest in the northern States and in Ontario and Quebec should have been reaped, and the year's

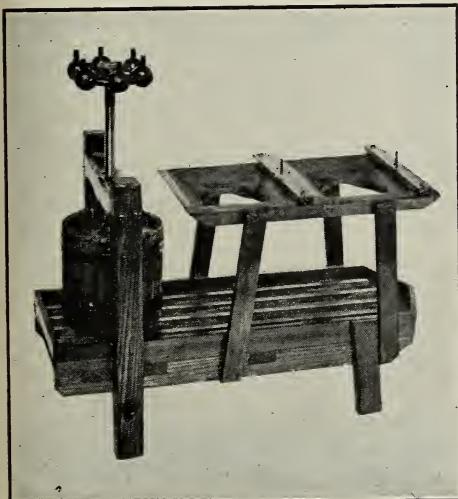
have sufficient until feeding for winter. Owing to the tendency to rob, this examination may have to be confined to weighing or lifting them; and, if necessary, ample stores should be provided. Within the last few days just at the close of the clover flow (which, owing to drouth, closed early), I pointed out to the students with me how, time and again, colonies, altho having a brood-chamber of 12 Langstroth frames, had not five pounds of honey in them. Such colonies are among the very best. They often have the most surplus on them, and yet are so poorly provided with stores that they would starve to death before winter feeding, which should not be done before late September or early October. In years gone by I have neglected this, and thereby lost some of my best colonies. (I take it for granted that a beekeeper generally extracts what honey there is above the queen-excluder. No other system is very practical.) Having found colonies that lack stores, their needs should be supplied in the usual manner by feeding not less than 10 pounds of sugar syrup as soon as there has hatched a sufficient number of young bees to give room for storing the syrup. The syrup should be put on the hive just before dark, and the usual precautions be observed against robbing.

With modern methods of management and the manipulation of the brood-chamber, breaking down queen-cells, sometimes pinching the bees (perhaps the queen), there is greater likelihood of queenless colonies. In any case there may be queenless colonies.

Our next work should be to see that every colony has a young queen. This is at a time when no harm results from the absence of a laying queen for two weeks. No harvest is ahead, and the colony loses no time thru rearing its own queen; for when the new queen begins to lay she more than recovers the lost time thru her youthful activity. Also, if requeened now with young bees the colonies will be less likely to be queenless in the spring, and there will be less need of stimulation from natural and artificial sources.

August is far too early to provide stores for winter; nor with normal colonies would I advise stimulative feeding at this time. Nature balances itself perfectly in this respect. Shall I say nature is its own defense and its own preserver? No gathering of honey and pollen, no vitality is lost by the bee, and she remains young. With honey-gathering, vitality is lost and the bees become old. While the bees are becoming old, the queen is laying eggs, which results in young and vigorous bees to take the place of the worn-out and dying bees.

In support of my advice in regard to



The Bedell capping press that was described by Mr. Holtermann in the July issue.

operations, so far as results are concerned, should be at an end. The time has come for laying the foundation for the success of another year's operations—at least so far as that success is under our control (which it is to a greater extent than many realize).

Dr. Phillips well said at Cornell University last winter that there are many who are good beekeepers and operators during the season when bees are active, but who fall down woefully in their management when the bees are not active. I have to admit the truth of his assertion.

Where there is no fall flow (and such a district is my own at present) all colonies should be examined to find out how they are supplied with stores, and to see if they

FROM THE FIELD OF EXPERIENCE

stimulative feeding, I know of several cases where, owing to oversight and neglect, queens were confined in a cage in the hive in June until the brooding season had passed. The bees were in a section where there was no fall flow, and the bees did not wear themselves out, and not only wintered with success but were normal colonies the following spring.

Dr. Phillips and Mr. Demuth, of Washington, have said that three pounds of fairly young bees is sufficient to take a colony thru the winter and have it in good condition the following spring so far as numerical strength is concerned. I am quite prepared to accept that statement; and yet I have known where four or five Langstroth combs well covered with young bees, and having a first-class young queen, wintered well when properly fed and protected with packing, and in an outside temperature of 20 degrees below zero; and they were first-class colonies in the apiary the following season.

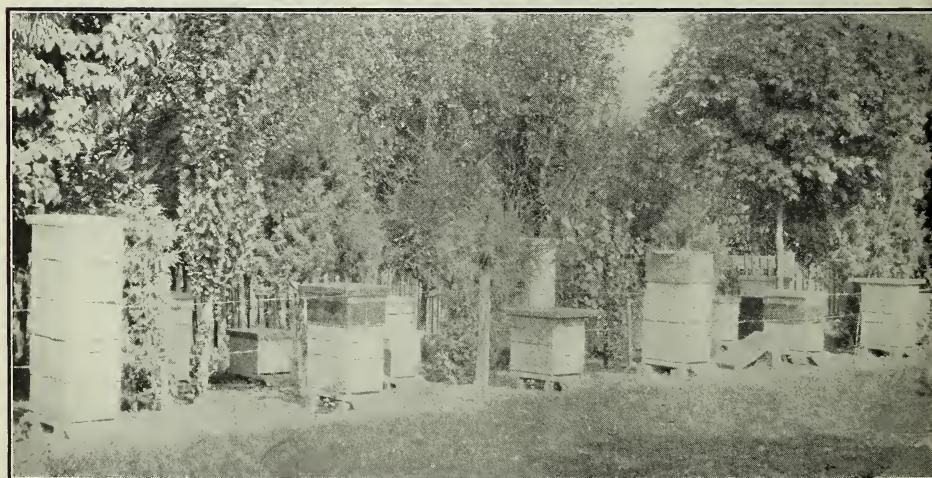
If I could devise a method by means of which I could, at the close of the honey flow, get rid of all the old bees and even the half-worn-out ones, I would do so. Stores would be saved until winter and during winter, and many bees which would have to be carried out by their sisters could be brimstoned in a moment and be saved greater hardships when coming to a normal end. When I have such a subject in mind I feel disposed to envy some one who has the time and means from the Government to experiment. It may be that bees could be carried in their hives a restricted distance, at which the long and distant rangers would return to the old location and the younger would be out of the previous area of flight. Then

the brood-chamber full of brood would all be saved for the new or youthful colony.

The entrances to the hives should be reduced when the honey flow closes. The entrances should be in proportion to the strength of the colonies, but much smaller entrances than are desirable during the honey flow and the swarming season.

Large and contented colonies are the foundation of large crops of honey. For this reason we seek to make it the will of the colony not to swarm; but there is no reason why the division of this large colony should not take place after the object sought by such holding together has been attained. Where one has in possession strong colonies with large (such as 12-frame Langstroth) brood-chambers, with two or three extracting-supers of honey and bees, there is no reason why two good colonies can not be obtained. There should be almost, or even quite, five combs, largely of brood, some pollen, and a little honey which can be added to by feeding 10 or 20 pounds of syrup. The division can be successfully performed by splitting the colony and combs down the middle, between the sixth and seventh combs. The half with no queen should be given a laying queen. It is better, but not necessary, to move the new colony. The young bees and those yet to emerge from the cells will remain on the new stand. Put the old queen with the bees on the new stand, and fewer bees will return. I need not mention the well-known device of putting a board against the entrance to draw the attention of the bees to the change in location.

Where there is a fall flow from such sources as buckwheat, goldenrod, boneset, aster, and the like, there is no better time



Attractive backyard apiary of L. J. White, Michigan.

FROM THE FIELD OF EXPERIENCE

to draw out foundation than in the autumn. The August work in such localities will be much the same, as just described, in regard to requeening and the time and manner of increase; but the increase will have to be at the expense of a portion of the honey crop.

R. F. Holtermann.

Brantford, Ont., Canada.

A LATE START IN BEEKEEPING

But a Real Success Achieved that Brought Both Money and Pleasure

It is not in the spirit of boasting that I present this brief narration of a late beginner's success with bees, but rather to prove that age and entire ignorance of methods form no barrier to entering the field of beekeeping with good chances of ultimate success.

Ten years ago, at the age of 62, I started beekeeping. Meeting a neighbor one morning he proposed to exchange two colonies of bees with me for a load of hay. I accepted his offer, and that day I became a beekeeper. I was, perhaps, as ignorant in the mysteries of the art as one could well be. In fact, I could not even tell a drone from a worker nor a super from the bottom-board. But being "in it" I resolved to succeed.

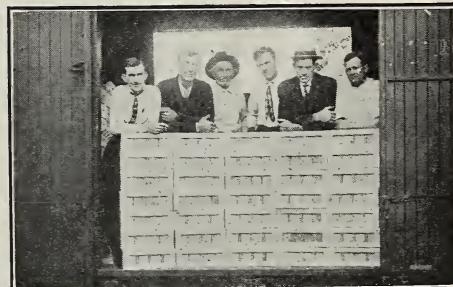
My first season resulted in increase of only one colony and no surplus honey, owing to absolute unpreparedness. The end of the second season of my venture showed me satisfactory gain, having secured some surplus honey and four colonies of increase. The second winter found me studying and preparing for the following season. My work was chiefly making hives and supers, wiring Hoffman frames, and filling supers with sections all ready for the hives. I early learned the value of using full sheets of foundation for both brood-frames and sections. The third season's crop more than repaid all previous expenses, and from that date on the business grew and became successful beyond my highest expectations.

The season of 1917, however, proved to be my banner year, and stamped success in big letters on my late-in-life endeavor with bees. At the beginning of that season I had on hand about 40 hives filled with frames of empty combs, or foundation, and 135 supers ready, too, with full sheets of foundation in every section. I commenced outside operations early by putting supers of empty comb and unfinished sections of the previous year on my strongest colonies during the fruit-bloom period. I allowed the full natural increase except that I raised the front of each hive $\frac{3}{4}$ inch in hot weather to overcome partially the swarming inclination.

My plan has been to allow all swarming and to double up the swarms as much as

possible, thus making new strong colonies that will in a few days jump right up into the supers and fill them with astonishing rapidity. Any old colony, apparently inactive or lacking in numbers or vigor, I treat to a new swarm; and to prevent fighting I give each several thorough smokings and then introduce the new swarm *en masse* from the top of the hive right on to the brood-frames, and never from the entrance. The new combination will, in a little while, work with the vigor of any new swarm.

Inspired, perhaps, to greater action by the voice of the press, urging every person to help in the universal need of more produc-



A carload of honey at Delphos, Ohio, and the men who produced it. From left to right are Walter Leininger, J. H. Allemeir, Fird Schimmoller, John Leininger, Fred Leininger, B. I. Solomon.

tion, I labored with determination both in beekeeping and my old-time line of gardening, and I believe I have added the cap-sheaf to my lifework industrially. My 45 colonies increased by swarming to 90 during the season, and my entire production from the bees netted me \$496.20, and from my bees and garden \$670. This I accomplished alone and unaided for the season of 1917, at the age of 72.

Altho starting late in life, and perfectly ignorant of bees and bee management, I have found pleasure and profit with them; and were I young today I would start with bees for a life occupation. E. E. Colien.

Manana, Wis.

ONE OF THE SIX BEST

A Failure in Colorado but a Success in Utah

Utah may boast of one of the six best beekeepers in the United States, according to no less an authority than Dr. E. F. Phillips of the United States Department of Agriculture. Utah people know this honey-producer as the man who took first prize for comb honey at the State Fair. Colorado knows him as a beeman they hated to see leaving the State, and, thanks to his success in producing honey, Hyrum, where he

lives, is getting a reputation for honey almost equal to that of Hymettus.

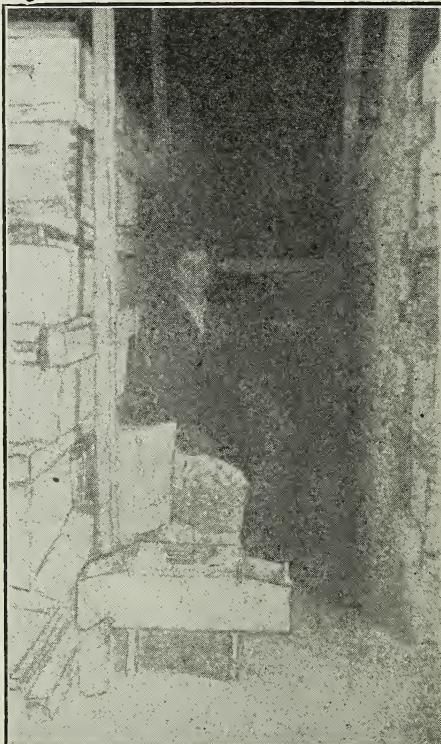
His name is Gill, and any man in Utah who wants to know anything about bees will do well to visit him, see his apiary scattered thru his orchard on the warm, wind-protected western slope and hear his honeyed words about the profitable little insects that work so well. He knows everything about them from Maeterlinck to markets.

"Northern Utah," he begins, "has wonderful bee pasturage with its alfalfa fields and irrigation canals lined with sweet clover. When I came here eight years ago I was much impressed with it. I had been living in Longmont, the bee center of Colorado, and three years of drought and grasshoppers had driven me to desperation. There were 11 carloads of us including bees, emigrants, and household goods, that left Longmont together. Some went to Idaho, some to Montana, and I was the only one that came to Utah. And I am glad I came. As I say, Cache Valley up in northern Utah looked to me like a good bee country, but until recently it has been overpastured. The bees in the fall were in poor shape. It was a hard winter for them. Everyone lost some colonies. I had 220 left out of 800. One man lost 1,100. Another man, one of the largest honey-producers in the United States, lost all of 2,200 colonies except 80, sold those in disgust and retired to California. I wintered mine in the cellar, the ordinarily an outdoor pack is enough in Utah, if there is protection from windbreaks. Summer honey-gathering conditions are good here. Alfalfa and sweet clover furnish abundant honey. Logwood is the best yielder of nectar and linden trees come next. That is why I'd like to see more of the latter growing in Utah. But alfalfa is wonderful. I always have a colony of bees sitting on scales and I look at the balances morning and night. During the alfalfa month of August the scales some days regis-

ter an increase of as high as eleven pounds of honey.

"I learned to love bees as a boy in Wisconsin. There I used to go out treeing wild bees with an old bee-hunter who found my eyes better than his. It was fascinating sport, and when I got married I began keeping a few colonies. Then when I moved to Colorado I made it my main business and had always from 1,000 to 1,500 colonies. There is more money to be made in extracted honey, but I love to work with comb honey. It is neater, more expert work. Anyone with intelligence enough to turn a grindstone can produce extracted honey, but it takes an artist, a born beeman, to handle bees for comb honey. You have to crowd them, they swarm more excessively, and you sell the whole product of the bee. My wife is a great help to me in this work, and we work together so calmly that the bees take us right into the family and never sting us. Some old writers say that bees hate bad odors, such as garlic and human perspiration; but what they hate most is nervous, jerky, excitable, swearing people. It was Maeterlinck's serene temperament before the war that made him watch the bees so carefully and write about them so well. I have his book and it is absolutely accurate, tho there are many poetical wrappings about his facts.

"As for markets, you can always sell honey. It is as



L. S. Griggs, Flint, Mich., in the car at Copemish, ready to start.

much a staple as wheat. I have a big local market among the cattlemen of Wyoming and Idaho, and there is always a demand in Los Angeles and Kansas City for carload lots. Consumption of honey has doubled in the United States in the past ten years. No, there is no trouble about markets. The great trouble is disease. European and American foul brood are the great enemy, and Utah bee-men are not fighting them as they should. The State bee-inspector will examine hives and notify the owners of disease and prescribe the remedy,

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but the farmer is usually too busy to apply it. Utah beekeepers are also inclined to be careless about grading and packing. When I first came to the State, eight years ago, I wrote to a buyer in Kansas City and told him I had a carload of comb honey. The dealer on seeing the postmark said, 'You Utahans don't know how to grade honey' and paid no attention to me. - I heard about it and asked him to send a man out to watch me. He did without my knowing it and I managed to satisfy him.'

While Mr. Gill was initiating me into the mysteries of bee culture we were walking in his apiary. As long as I kept from swearing and gesticulating the bees did not sting me, and I ate peaches and plums while taking notes; for the colonies are scattered about an orchard protected on the east by a windbreak of box elder. Thus Mr. Gill has bees for a main source of income and takes a yearly flyer in fruit. (He pointed to one Flemish Beauty pear tree that had paid all of his taxes except six dollars.) There is no doubt that the honey product in this State could be indefinitely increased.

Frank R. Arnold.

Logan, Utah.

MOVING BEES BY FREIGHT

Loading on Cattle Car and Care of Bees During Trip

Recently we moved 184 colonies of bees from Copemish to Flint, Mich., a distance of about 200 miles—you might say between two honey flows, as the pin cherries, which get the bees to brooding nicely, had just

about finished blooming, and the alsike was just commencing, when we arrived in Flint.

As I had moved bees by freight before, Mr. Griggs invited me to go with him. On the morning of the 5th we drove six miles out to the bees and worked from about 8 in the morning till 4:30 p. m., the following morning equalizing brood and stapling a full set of extracting-combs above each colony, after which each bottom-board was fastened with four two-inch hive-staples, and a frame $1\frac{1}{4}$ inches high covered with wire screen was nailed over the top.

Then began the task of hauling six miles to the car, and loading. For shipment we had a cattle-car and loaded the hives with frames lengthwise of the car, two rows on each side of the car, and three double-story colonies high, placing above the first and second rows two 2×4 scantling lengthwise of the rows. These were then fastened by placing a 2×4 piece against each row and an upright piece at each end in the middle, fastened to the top and floor of the car with cleats and spikes. This left an alley thru the car, at each end of which Mr. Griggs and the writer had a bed of straw where we slept for two nights among the bees. During the night a bee would occasionally crawl over us, and in moving we would be stung. Then we would turn on our pocket searchlight, pick out the sting, and roll over and go to sleep again.

For the bees we carried a barrel of water which we sprinkled on the tops of the screens. Another time we would find it convenient to have with us a hand spray-pump to water the bees more effectively. We would also more securely fasten any loose



Bees at Copemish, Mich., before being prepared for shipment.

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hanging frames, as we found the side motion of the car, which at times was very considerable, killed quite a few bees. We arrived at Flint with every colony alive, and upon examination found only three queens missing out of 184 colonies. The bees were successfully moved to two yards in the suburbs of Flint, where they are now working nicely on clover bloom.

The writer's bees are in the vicinity of Flint; and so, including the bees Mr. Griggs had before his recent purchase, we now have nearly 700 colonies in all directions from Flint.

E. F. Townsend.

ONCE A BEEKEEPER ALWAYS ONE

Stiles Finds More Real Enjoyment in Bees than in a Professorship

There's no use in arguing the question any longer, a man who has once successfully kept bees will never be happy without them. Chas. F. Stiles of Stillwater, Okla., exemplifies this fact to a T.

When he was a lad of thirteen his father made him a present of six colonies of bees



Corner of Stiles' apiary that put him thru college.

hived in old box gums. The boy was delighted, but how was he going to do anything with them "put up" in those old boxes? Young as he was he saw the necessity of modern equipment and he thought, dreamed, and talked it until he got it.

The first year he sold enough honey to buy two modern hives, and just as soon as those bees found it out two of the strongest colonies swarmed. Of course, it would not do to disappoint them, so they were placed in the new hives.

They looked so "nifty" and worked so hard that the boy decided to speculate a little and borrowed enough money to buy modern hives for all the rest. His debt, however, was not of long standing, for he sold almost enough honey and wax, from the old boxes to pay for the new hives.

Each year the number of colonies increased until he had fifty colonies and had sold enough honey to pay his expenses in college.

The next four years college kept him

away from home and during that time the apiary was neglected until it was no longer profitable. Consequently in 1914 he sold all but a few colonies which he kept to supply the home table.

Just out of college! He thought he would be a professor and get a few feathers in his cap, and it actually took him four years to see the emptiness of that humdrum life. He was neither healthy nor happy—he wasn't healthy, because he wasn't happy. Under the strain of that nerve-racking confinement he grew paler and thinner until the doctor told him he must go West and seek outdoor employment.

What could he do? He had to go. Well, he just rambled around until one day he landed, plunk, right down in the middle of Oklahoma. Just about that time Dr. Phillips was looking for a man to be Special Field Agent in Bee Culture for the State of Oklahoma. Right then Stiles woke up. The very mention of bees set his pulse throbbing, his blood began flowing the right direction, and that hazy mist cleared away from his brain. He got the position and held it successfully for over a year. He grew strong and happy, but there was something lacking. He just couldn't be satisfied seeing the other fellow have all the pleasure of owning the bees. Hadn't he been a beekeeper once and didn't he know all that it meant to be a beekeeper? Yes, and he was going back.

The next thing anybody knew he had bought an agency for bee supplies and now calls his firm "The Stiles Bee Supply Company." He has an apiary, too—yes sir—that's the moral of the story.

Stillwater, Okla.

Lottie Altizer.

COLONY MORALE AND ROBBING

Nothing Depresses Colony Morale Quicker than Robbing

That's a good article in the June number, page 357, on "The Spirit of the Hive." I have noticed one or two other factors which influence this spirit quite a little.

Nothing depresses colony morale quicker than robbing in the apiary. In large apiaries, particularly on ranges like alfalfa, part of the yard is robbing all of the time or trying to. Everyone knows that in a yard of Italians there are nearly always a few bees in front of each hive trying to get in and steal and occasionally doing so. This keeps the colony always upset and nervous.

Any one can illustrate this point by setting a number of average colonies off from the main apiary in isolated locations, where their entrance is not exposed nor their hive conspicuous. I have noticed that such colonies average at least 20 to 25 per

FROM THE FIELD OF EXPERIENCE

cent better than the rest of the yard. For a long time I thought it was because they worked a different range from the main yard, but it's the decrease in robbing that does it.

This spring I set 62 of our weakest colonies along the south side of a ditch bank for additional warmth and protection from wind. As they were to be run for increase and needed few visits, I left them there all the spring. These nuclei got more nectar all the spring than the main yard of stronger stands, getting it even when the others did not seem to get any.

For a while I thought it was the additional warmth (which really does increase colony morale and ambition up to a certain extent after which it decreases it). However, asparagus and milkweed and grass grew up around these hives hiding their entrances, and eventually hiding the hives. Now, I never did think I liked my bees hid from view with weeds, but those bees very certainly did a lot better than the rest of the yard only a few feet away. I'll not advocate keeping weeds around bees to prevent robbing, for weeds in a yard certainly do go against the grain; but I do believe in small isolated yards, and in a prevention of robbing so far as possible, and—yes, I do believe I would let a little grass grow in front of the entrance if nowhere else. I believe the bees would rather climb down the grass than to be warding off robbers all the time.

Did you ever notice how foul brood (American at least) decreases the hive spirit? These are the stands which are the first to be robbed, at least after the disease is under noticeable headway. Do you know that American foul brood, besides destroying the larvæ, makes lots of bees sick and weak? Cage bees from foul brood and bees from a strong stand, and see which starves or succumbs first. Foul brood is like anything else that worries the bees, it certainly decreases the "colony morale."

Overton, Nev.

T. W. Riggs.



THOROUGHWORT OR BONESET

A Fall Flower That Contributes in Some Places to a Late Honey Flow

There are in North America some 47 species of *Eupatorium*, popularly called thoroughwort or boneset. They are most common in the Eastern United States, being especially abundant in the warmer climate of the Southern States, but are comparatively rare in the Rocky Mountain region. While many kinds thrive in dry woods and sandy fields, others grow in damp or wet soil, or even temporarily in running water. The thoroughworts are tall, coarse plants with large, resinous-dotted aromatic leaves, and white

or purple flowers grouped in large, flat-topped clusters.

The two most widely known species are common thoroughwort (*Eupatorium perfoliatum*), also called boneset, Indian sage, and ague weed; and purple boneset (*E. purpureum*), other English names of which are Joe-Pye weed, gravel root, queen of the meadow, and kidney root. These two species will usually be found listed in the honey floras of most of the Eastern States; but, owing to the fact that many other flowers bloom at the same time, pure thoroughwort honey is seldom obtained. Thoroughwort is an important component of the dense masses of weeds which cover the great sawgrass flats of Florida, but wild sunflower, goldenrods, asters, Spanish needles and smartweed bloom contemporaneously with it, so that the honey is a blend from many flowers. In most of the North goldenrod and aster greatly exceed thoroughwort in abundance.

In Tennessee, according to J. M. Buchanan, several species of *Eupatorium* are common along the northern edge of that State and yield heavily, especially white thoroughwort (*E. album*) and white snake-root or white sanicle (*E. ageratoides*). The former species is confined largely to the Southern States, but the latter is a woodland plant from New Brunswick to Louisiana. The honey is light amber, but has a rather high flavor. Further south, altho these plants are abundant, they produce very little honey. Through Kentucky thoroughwort is common on damp ground; but at Lexington, I am informed by the botanist of the experiment station, it is not abundant enough to furnish honey in any quantity. But at Hopkinsville, Virgil Weaver writes that he became acquainted with a beekeeper who said that it was one of his main sources of honey. It blooms in August and September and yields a light-amber honey with a fine flavor. The genus seems to be best represented in the southwestern part of the State.

Eupatorium belongs to the Compositæ, a family in which the small tubular florets are massed in heads, and the heads are aggregated into conspicuous clusters. In the common thoroughwort (*E. perfoliatum*) there are from 12 to 15 florets in a head. The corolla-tube is about 2 mm. (about one-twelfth inch) long widening out into a little cup, so that the nectar can be reached by a great variety of insects, including bees, wasps, flies, butterflies and moths, and beetles. More than 130 species of insects have been collected on the flowers, which are sweet-scented. More butterflies have been observed by the writer to visit these flowers than others in this locality. The purple boneset (*E. purpureum*) has longer corolla-tubes and is visited by a much smaller number of insects, those with short tongues being excluded.

Waldoboro, Me. John H. Lovell.

SPeAKING of strengthening weak colonies by giving them from strong colonies frames of brood with adhering bees, Iona Fowls says, page 459,

"When the frame is taken from the hive, and gently shaken, only the young bees are left on the comb, which may then be inserted in the other hive." A beginner might understand from this that without the shaking there would be danger of fighting. I have thus given brood and bees hundreds—yes, I think thousands of times. I never did any shaking, gentle or otherwise, and I never knew of harm resulting. But I was always careful not to give so many strange bees that they would outnumber the bees of the weak colony. But the shaking can do no harm, for the old bees would return to their old place anyhow, and it has just occurred to me that possibly by Miss Fowls' plan the precaution as to numbers might not be necessary. [The question was not, "Will the bees fight?" but "Why will they not fight?"] In substance I answered, "Because they were not excited but acted naturally." Don't you think, Dr. Miller, that my acceptance of the latter question ought to imply a general negative to the former? But perhaps I did not make it quite clear. In apiaries that I believe to be free of disease I often give bees in this way, and without taking the trouble to shake the combs either. Nevertheless I would not guarantee that one could do this thousands of times with no bad results (not unless he had as good a strain of bees and as much experience as Dr. Miller). If the work is done with cross hybrids, or with bees unduly stirred up, there will be occasional cases in which fighting may take place and the queen, perhaps, be killed. Such trouble will not occur, however, if young bees instead of old ones are given. The gentle shaking sifts out the old bees from the young ones.—Editor.]

* * *

Belva M. Demuth gives some excellent instruction, page 426, as to management of sections at the winding up of the harvest, and at the close says: "We extract the honey from these few remaining sections and put them on a few hives overnight to be cleaned out by the bees." Do you find the bees always ready, Mrs. Demuth, to do this cleaning out promptly? In this locality they are quite unreliable. Even if they promptly clean up the muss, they are likely to assemble the honey in a few cells in the sections, leaving one nearly as bad off as before. So I had to give up years ago getting honey cleaned up over a colony. Anyway, the plan wouldn't work with those who produce sections on a small scale and have no extractor. For many years I had the bees clean out the unfinished sections with-

STRAY STRAWS

Dr. C. C. Miller

out first extracting them. One way was to make full exposure of the sections so all the bees of the apiary could get at them. If a single super of

sections were thus exposed, the comb would be torn to bits. But if there were several sections for each colony, the combs would be left untorn, and you could rely upon their being thoroly dry. If there were not enough sections to be left openly exposed, then I put out the supers in piles, allowing for each three of four supers an entrance for not more than one or two bees at a time. But in this way I sometimes found dead bees in the supers, as if the bees might have been fighting. Mrs. Demuth's plan is better than either of these, with danger of neither torn combs nor dead bees, if you can secure hearty co-operation of the bees.

* * *

H. H. Root, you say, page 461, that queen-excluders are practically unnecessary under section-supers, since the queen is little inclined to go up to lay in sections. Better put an "if" with that—if the section is entirely filled with foundation. If my sections were only partly filled with foundation I should certainly want to use excluders. When I have had an occasional section only partly filled with foundation the bees would be sure to fill out the vacancy with drone comb, likely to be filled with drone brood, or else held empty for the queen to lay in.

* * *

An ad in The Beekeepers' Item speaks of boiling foulbroodly honey about ten minutes, and says: "This thoroly purifies the product so that it may be safely fed to the brood." Have there been any late investigations to warrant such a statement? According to all that I have read, ten full minutes, not to say anything as to "about ten minutes," would be much too short a time, even if the honey were kept actually boiling all the time. The Beekeepers' Item is a good paper, printing useful, readable matter, and it's up to Brother Scholl to look out that even its ads are kept free from error. If, however, you are able to justify the aforesaid statement, Brother S., the proper apology will be promptly forthcoming from this quarter. [Bulletin 92 O. K.'s this, but in practice we find more time advisable.—Editor.]

* * *

In previous Straws I have had something to say about the number of cells to the square inch, basing my figures on the average five cells to the linear inch in natural comb built without any foundation. The majority, however, of those interested in the matter have combs built upon foundation, and care more to know what is the average number of cells to the square inch in combs thus built out. I measured the

rows of cells in a sheet of brood-foundation, and in the row of cells running horizontally found 40 cells in 8 $\frac{5}{8}$ inches. In one of the diagonal rows there were 42 cells in 8 $\frac{5}{8}$ inches, and in the other there were 42 cells in 8 $\frac{9}{16}$ inches. So there were 124 cells in the 25 13/16 inches measured, making the average diameter of the cell .20818 of an inch. Dividing 1.1547 by the square of that diameter gives 26.645 as the number of cells in a square inch. That's about 2 cells less than in comb built without foundation. Will all foundation give the same results? Very unlikely. I suppose that all foundation mills are alike, having perfect hexagons, but the sheets of wax will stretch in the milling, and different conditions will make the stretching vary. We need more data to have something reliable.

Later.—Now comes one H. H. Root, and desposes that the mills do not have perfect hexagons, but are made so as to allow for stretching. He gives further information that is very interesting, but rather disconcerting. He thinks 39 cells in 8 inches comes pretty close to the average. That would give 27.441 cells to the square inch. He measured a piece of surplus foundation, and says: "In 4 inches, horizontal measurement, I counted 19 $\frac{3}{4}$ cells. In one of the diagonal measurements there were 19 $\frac{1}{2}$, and in the other 19 $\frac{3}{8}$. These are not exact, merely as nearly as I could estimate with my eye." That would give 27.837 cells to the square inch. (I should have expected more stretching in the surplus foundation, hence fewer cells, but it seems the other way.)

We now have three numbers of cells to the square inch, there being a difference of a little more than one cell between the largest and smallest, and the average of the three is 27.307 cells to the square inch. What would be a fair thing to take for the average? Some of you figure-heads at Medina—I mean you fellows with heads for figures—help us out.

* * *

Arthur C. Miller says in The Beekeeper's Item: "I recently examined several hundred combs built on slack wires from standard weight foundation and not painted, and tho done by and built out under the care of an expert beekeeper, there was not a perfect comb in the lot. Approximately the upper inch of every comb was of stretched cells and useless for brood, or a reduction of brood capacity for the hive of about 10 per cent. Then by having the outer combs crowded against the sides of the hive the outer surfaces were useless for brood; so this beekeeper like thousands of others had but the equivalent of eight combs on a ten-frame investment." Mr. Miller's remedy is the Vogeler process of painting hot wax over the surface of the foundation. This matter of having cells in the upper part of the comb that the queen will not use is a serious one, all the more serious because many are not aware of their loss by it. The

notion that bees will not use the upper inch of comb for brood is, I am sure, erroneous unless there be something wrong with that upper inch. By using foundation splints I have had the row of cells next the top-bar nicely filled with brood. [The stretching of the inch or two of comb next the top-bar is a condition that is all too common. Since the editor has been in California he believes he has a solution that will increase the breeding capacity of the brood-chamber from 10 to 20 per cent. He will have something to say on that question in a subsequent article later on. The stretching of the top row of cells has so reduced the queen's capacity that swarming has resulted where in many cases it could have been avoided. And the actual crop of honey has been reduced because the working force has been curtailed in proportion as the breeding capacity has been limited by the stretching of the before-mentioned cells.—Editor.]

* * *

M. S. P. writes: "I am sure that if one were even to hammer the ground near a hive that the vibration along the ground, as well as thru the atmosphere, would excite the bees to a high nervous pitch. I have noticed this often, and am sure that while they may hear, vibration is the cause of what we suppose is hearing." I think it is generally understood that jarring a hive, which the bees feel, but do not hear, is the cause of trouble. But that proves nothing one way or the other, about hearing. I can feel a jar without hearing it, and I can hear a noise without feeling it. Why may it not be the same with bees?

* * *

Eugene Secor was a good man in many ways, but among beekeepers will probably be best remembered as the beekeepers' poet. Nearly all the beekeepers' songs were written by him. I don't know how much of a musician he was; but he had his own notions about the music to be set to his songs, and when sending to me the words to which he wanted music written he nearly always had some suggestion as to movement, chorus, or something of the kind.

* * *

In Texas, as in other States, there is diversity as to taxation of bees, they being taxed in some counties and not in others. The Beekeepers' Item reports that at a late meeting of Texas inspectors this resolution was passed: "Be it resolved that the County Apriary Inspectors go on record as favoring the rendition of bees for taxes in every county in the State." Which goes to show that those Texas inspectors have sense.

* * *

"It is regrettable that there is no law to prevent those who have no regard at all for the golden rule from poaching on the territory of others," page 418. Thanks, Mr. Editor, many thanks. Whenever enough get to talking that way, there is no reason why there may not be such a law.

MERRY are these mornings at our home, as the truck is loaded with brood-chambers filled with frames of foundation, supers of sections, smokers, bee-veils, extra clothes in case of rain, lunches for the noonday meal; and two experienced beemen with two strong boys, with jest and laughter, start for outyards four to twelve miles away.

* * *

Bees are doing well in this section altho the weather has been too cold and wet for the greatest yield of honey. A light frost on the mornings of June 22 and 29 reminds us that winter lasts until July in New England and "comes out in spots all summer."

* * *

The idea of putting a super of brood-combs on a hive after the sections are removed at the close of the season, as advised by Belya M. Demuth, page 426, is new to me. About here we want for winter use all the late honey, if there is any stored in the brood-chamber. "Locality" again.

* * *

When I read of the immense quantities of extracted honey that is being produced in carloads and carloads, I am reminded of a letter written about 1872 by D. W. Quimby of New York to the American Bee Journal, asking beekeepers not to ship extracted honey to New York as there was very little demand for it.

* * *

I find a super of shallow frames about as heavy as I care to lift alone; but, with a strong boy to help, I can lift those with deep frames just as well. We are using only seven frames in an eight-frame super this year. It saves frames and makes uncapping easier.

* * *

J. L. Byer says, page 449, "One thing sure, the prospective or present active bee-keeper must more than ever realize the necessity of being able to diagnose the two brands of foul brood, and in a measure be his own inspector." He hits the nail square on the head. It looks hereabouts as tho the old-fashioned let-alone beekeepers are about to go out of business and stay out.

* * *

I received a nice letter from S. A. Ratliff, some time since, explaining the reason for holes in the bottom of aluminum combs. These holes were, he said, for the purpose of getting the bees started to work in the combs. I was glad to know this. The aluminum comb I had was placed in the center of a strong colony June 21, and I found three days later all these holes stopped in the central part of the comb, and in a week nearly all were closed with wax, and some

SIFTINGS.

J. E. Crane

honey and pollen stored. After eleven days there was, I judged, one and one-half pounds of honey stored near the top and ends of the comb while the central part was left for brood. The workers evidently thought it was all right for this purpose; but the queen, more fastidious, had refused to trust her eggs to a metal comb. However, queens often refuse to lay in new combs when they can find old ones in which to lay. After the bees have worked it over, it looks absolutely perfect, and no one would suspect its artificial origin except by the color and ends. I am watching it with intense interest. Of course, one comb in one hive is not a fair test of its value. Whether these combs prove a success or otherwise, the person who succeeded in making them is worthy of great credit. I hope they may prove all that is claimed for them.

* * *

An invalid across the street, confined most of the time to an open air porch, finds not a little recreation and enjoyment in a one-comb glass hive. The glass is covered with corrugated paper when the bees are not being watched or studied.

* * *

This section seems to be improving in honey resources. In an inspection trip a few days ago with a horse and carriage, I saw very few meadows in which there was not more or less alike clover in blossom. A horse and carriage is, to my mind, much better for looking over the country than an auto. A new colony on scales yesterday gained eight and one-fourth pounds.

* * *

That press for extracting the honey from cappings, page 423, July Gleanings, looks good, but—Mr. Holtermann represents it as being able to press out nearly all the honey when the cappings are dropped directly into the hoops and then pressed; and then farther on he tells us that Mr. Bedell by first allowing his cappings to drain thoroly before pressing them saved some 40 pounds of honey to each one thousand pounds of honey extracted. He is quite sure very little honey is left in the cakes of pressed cappings, for in chewing pieces of these cakes the wax is only slightly sweet. It would be interesting to know the exact proportion of wax and honey in these cakes. We could then estimate quite accurately the saving by the use of the press. [The fact that Mr. Bedell is willing to uncapping directly into the hoops and then press instead of allowing to drain a day as he did last year, would indicate that he is getting nearly if not quite as good results in this way. We cannot tell the exact amount of honey left but, from the samples we saw, the amount must be very slight indeed.—Editor.]

WHEN I was a small girl studying geography in the grade schools we were taught that the superiority of the peoples of Europe and North America over the inhabitants of the tropical countries was due to climate, that cool or cold and bracing weather was conducive to energy, and for that reason Europeans and their descendants had always been progressive and the dominant race. Personally I shall continue to believe there is some truth in that theory, for altho I love summer days with sunshine, blue skies, and moderately warm weather, the kind of a day when bees are busy on the basswoods wilts energy and ambition right out of me.

But now comes Dr. McCollum, of Johns Hopkins University, with the claim that the cause of the inferiority of the peoples of the tropics, represented by a large part of India, China, Japan, and the Philippine Islands, is because they have never developed a dairy industry, that they have never used milk, and their consumption of eggs is small except among the well to do. He says they are with few exceptions undersized, poorly nourished, and have a short span of life, that their infant mortality is the highest of any peoples of the world. They have never achieved much in the fields of science, literature, art, or invention, but have been content to go on generation after generation in the ways of their forefathers.

Dr. McCollum is professor of chemical hygiene of Johns Hopkins University and has been in charge of prolonged feeding experiments both upon animals and groups of human beings, these feeding experiments, some 3,100 in all, extending over a period of eleven years. These experiments developed the fact that it is impossible to make up animal diets which would preserve the species thru three generations without milk, eggs, or the leafy portions of plants. Animals which were fed a ration of cereals, legume seeds, such as dried peas and beans, tubers and edible roots, even with the addition of as much as ten per cent of meat, such as steaks and other muscle tissues, failed to make a normal growth, and premature degeneration took place in the older animals.

There are three reasons why diets lacking the above-named foods are inadequate: first, all such diets are deficient in certain soluble minerals; second, they lack the so-called vitamine soluble in fats, called by McCollum "Fat soluble A;" third, the proteins found in milk, eggs, and meats are worth about six times as much to the living body as the protein found in legumes, such as dried peas and beans.

It is for these three reasons that McCollum coined the term "Protective Foods" for milk, eggs, and the leafy vegetables, such as

OUR FOOD PAGE

Stancy Puerden

spinach, lettuce, Swiss Chard, cabbage, celery tops, turnip tops, Brussels Sprouts, etc.

At this point someone may wonder why we human beings

may not depend entirely upon the leafy vegetables for our protective foods instead of being obliged to supplement them with milk. Human beings do not seem to be so constituted as to be able to use the leafy vegetables for a very large proportion of their diet. Apparently our digestive apparatus is not designed to accommodate enough of the leafy portions of plants for safety, and we must, therefore, in addition to a generous supply of the leafy vegetables, depend upon the grass-eating, milk-producing animals for milk if we wish to be adequately nourished. The meat of these same animals, tho a valuable food, will not take the place of their milk. It is deficient in the growth-promoting principle, essential not only to the young but also to the adult to prevent premature degenerative changes.

McCollum points out that the Orientals and the peoples of the tropics eat much more of the green leaves than we do, and he believes it is this which has preserved them from total extinction.

Let me quote a little direct from Dr. A. C. Sherman, professor of food chemistry of Columbia University and author of several valuable books on foods and food chemistry.

"So far as things so different in character can be compared with each other, it seems perfectly safe, in view of our present knowledge of nutrition, to say that a quart of milk is a greater asset to the family dietary than is a pound of steak, and anyone that can afford to buy meat at all can better afford to buy milk. Lusk's dictum that the housewife having a family of five to feed should buy three quarts of milk before buying a pound of meat remains as sound as ever, altho the prices of both have risen."

Do you sometimes wonder why Our Food Page touches on this subject so frequently? It is because in these days of rapidly advancing prices too many housekeepers are inclined to economize on the milk supply and the amount of green vegetables, regarding the first as a beverage and the second as a luxury with little food value. A walk in the residence district of almost any town, just after the milkman has been on his rounds, reveals milk bottles all too small and too few in number. As a result the dairy herds all over the country are being reduced and there is a prospect of our race suffering from mal-nutrition and deteriorating physically and mentally.

NOW that we have reached the conclusion that we should all use milk and plenty of it, let us consider the subject

of the milk supply. Those who have never owned a cow of their own can never imagine how good milk, cream, and butter really can taste. Fresh milk to drink twice a day, pans of milk covered with thick, yellow cream in the ice box, and perhaps a firm little pat of butter of home manufacture give a house-keeper a wonderful feeling of satisfaction. Whenever practicable I believe a family should own a cow, or at least have part interest in a cow while their children are growing up. For years we have owned one-sixth part of two cows, which would be equal to a third of a cow, wouldn't it? and most of the time we have all the fresh milk and cream we can use, and occasionally we have enough cream to spare for a little pat of sweet butter, churned in a cream whip. It is great fun, and the work of straining, dividing the milk and washing pails and cloth strainer does not become a burden if each family takes it in turn, a month at a time.

If you are unfortunate enough to find yourself in a locality where fresh milk cannot be secured, dried milk may now be obtained by sending direct to the producers. This is pure, pasteurized milk, reduced to a powder by a process which removes all the water content, and when the water is restored it looks and tastes like fresh milk which has been heated to the point of pasteurization. It will keep indefinitely in the dry, powdered state, but when mixed with the required amount of water will sour as ordinary milk. Both dried whole milk and dried skimmed milk, suitable for cooking purposes, may now be obtained. They have been used by large baking industries for some time, but have only recently been offered to the public.

If it is difficult to induce your family to drink enough milk there are endless ways to use milk and the milk products in cooking, such as creamed and scalloped potatoes, creamed vegetables of all kinds, creamed chipped beef or codfish, white sauce, custards, puddings, junkets, bonnyclabber, etc., and nearly all good housekeepers are glad to have sour milk for use in baking.

As to cream, there is just no limit to its possibilities; vegetables, fruits, and cereals are nearly all improved by the addition of a little cream. A spoonful of whipped cream placed on a dish of cream of vegetable soup just before it is served will spread over the surface and give the soup a velvety texture. Pie crust spread with cream just before it is put in the oven will taste much richer than it is and will brown delicately and have a delicious flaky texture and fine flavor.

Cottage Cheese.

If you like cottage cheese and can produce an article which satisfies your own household, you will not need to read this; but several people have told me they never liked cottage cheese until they tasted mine, and so I will tell my way on the chance that there may be others with similar tastes.

In the first place, when you remove the milk from the ice box be sure to put it in

a warm place to sour quickly. Because of the necessity for this it is easier to make cottage cheese in the summer, but good cheese may be made in the winter if the milk is soured in a warm part of the kitchen instead of in a cool pantry. When it is solidly clabbered place the utensil containing it on a stove mat over a gas burner turned low or a moderately hot part of the range. It is well to cut thru the curd several times to make sure that the heat can penetrate evenly.

So far this is just as anyone else makes cottage cheese; but where others merely warm the curd I heat it steaming hot and then remove it from the burner and let it partially cool before turning it into a colander to drain. This leaves the curd firm and dry but not tough. When the curd is not heated to this point a little of the whey is left in the cheese, and I believe it is the slightly bitter taste of the whey to which many people object. When thoroly drained put the curd in the ice box until ready to serve, when it should be worked until smooth with the back of a spoon, seasoning it with salt and adding cream until it is as soft as desired. Serve it with more cream poured over it and sprinkled lightly with pepper or paprika. If you have no cream, work softened butter and a little milk into it.

Chopped green sweet pepper or canned pimento may be added to cottage cheese, or it may be packed into green sweet pepper cases. It is also very tempting served with marmalade, preserves, or honey.

CREAM SALAD DRESSING.

½ cup sweet or slightly sour cream	2 tablespoons vinegar
1 teaspoon sugar or honey	Dash of pepper or paprika
½ teaspoon salt	1 teaspoon minced onion, if desired.

Add the dry ingredients to the cream and then the vinegar, a little at a time, beating constantly. Serve with green vegetables.

EGGS POACHED IN MILK.

6 eggs or less	1 teaspoon salt
2 cups milk	Buttered toast.

Turn the milk into a frying pan, bring to a scald, and add salt. Break the eggs into a saucer, one at a time, and slip into the scalded milk, cover and cook until set. Serve on the buttered toast, the crusts of which have been softened in the hot milk. Do not let the milk boil. Skimmed milk may be used.

GREEN CORN PUDDING.

2 cups fresh green corn cut from cob, or 1 can corn 2 eggs 1 tablespoon butter	1 teaspoon salt Pepper or paprika to taste 1 ½ cups milk.
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Carefully cut the corn from the cob, cutting only halfway thru the kernel and scraping out the rest of the pulp with the back of the knife; mix with the eggs slightly beaten, the butter, honey, and dry ingredients; add the milk and bake in a glass or earthenware pudding dish until the custard is set. It should bake slowly.

"I 'in the sweat of thy brow,' but it was never written 'in the breaking of thine heart,' thou shalt eat bread; * * *

Now in order that people may be happy in their work, these three things are needed: They must be fit for it; they must not do too much of it; and they must have a sense of success in it."

This is part of what John Ruskin said about happiness in work. He also says this:

"All rivers, small or large, agree in one character; they like to lean a little to one side; they cannot bear to have their channels deepest in the middle, but will always, if they can, have one bank to sun themselves upon, and another to get cool under; one shingly shore to play over, where they may be shallow, and foolish, and childlike; and another steep shore, under which they can pause and purify themselves, and get their strength of waves fully together for due occasions. Rivers in this way are just like wise men, who keep one side of their life for play, and another for work; and can be brilliant, and chattering, and transparent when they are at ease, and yet take deep counsel on the other side when they set themselves to the main purpose."

Daddy Lowe is not the only one who loves Ruskin. For many years his truth and beauty and noble charm have held thousands of readers captive. The hours yield themselves utterly to the spell of Ruskin's page, and as I close the book, to come back to tasks that call me, there are shreds and scraps of his beauty tangled in my thought. Tho the clatter of things to be done brush away many of these precious bits, these two I had to share with all true sideliners. They are ours.

Indeed, all the gifts of all the great minds of all the ages are ours, merely for the claiming, and we miss by far the most precious part of our inheritance when we fail to claim them. Shall we give our hours and our thoughts so completely to honey-production and honey-marketing, and those things that give food and drink to the body, that we forget the more important things that give food and drink to the soul?

We hear about "reading beekeepers" and the phrase means to us beekeepers who read about beekeeping. As they should—oh, most steadily and enthusiastically and profitably. But tho I read all the books on the gentle art of beekeeping—Langstroth, Quinby, Miller, Phillips, Pellett, A B C, and the rest; tho I digest bulletins and treatises and Gleanings and all the other journals in print—if you grant me no time or opportunity to read anything else, anything written out of the high mood of somebody's soul, then, tho you develop a success-

ful beekeeper, how about me, myself? I shall have starved.

Love of books, great books, and love of outdoors—grand scene or gentle scene, cloud or star or

springing grass—what are these but love of beauty, and what is that but love of God?

If you don't mind my being personal, you know I met Dr. Miller last winter. And tho of course I knew it of him before, still, even if I had not, as soon as I saw him I couldn't help knowing that he was something more, something much more, than even a great beekeeper—he was a man with a great soul, that had fed thru long quiet hours on great books, and living beauty, and high thinking. And there was Eugene Secor, whose sudden and tragic death so shocked us all last May. Shortly before his death he had sent me copies of two addresses he delivered this spring. They were both filled with the thoughtful dignity of a nature-lover who had taken time to live fully, deeply, richly. Note this, from one of them:

"One cannot live in the wonderful presence of Nature without becoming wiser, better, and happier. The real sages of all ages were outdoor men. The mind expands in contact with the work of the Infinite Purpose. * * * There is something about the outdoor world that makes one feel that man is only a small part of a great system, and that thought should make one humble and impressionable to higher purposes and nobler aims than mere money getting."

Perhaps, if you chance to be a professional beekeeper, you are thinking, "Oh, reading is all very well for sideliners—you, for instance, have only 50 colonies—I have a thousand—I have no time for these things." Then you better sell about nine hundred and fifty! And buy a book—and a rose!

Except for its absurd exaggeration, there is nothing foolish or impractical about that. Wasn't it Mahomet who said, "If I had but two loaves of bread, I should sell one and buy a hyacinth for my soul?" The wisest and most practical thing in all the world is the thing that keeps the inner selves of us fine and high. For "this secret and poetical enthusiasm in all your hearts is indeed one of the holiest parts of your being." Which brings us right back to Ruskin again.

The few reports we have heard to date of honey crops around here are as discouraging as we expected, not more than 25 to 30 pounds average, spring count. Rather dark honey at that. Probably some of us will enter into competition with W. J. Harvey of Upalco, Utah, for the prize for the best record for 1919! The local crop as a whole may, however, rise to a better average than this. One thing looks certain to me. Where you get very often such small crops as that,

Beekeeping as a Side Line

Grace Allen

shallow supers are preferable to full-depth. The little combs are filled and sealed to the bottom-bars, while full-depth combs are not ready to extract.

One day I sat idly watching the bees, and just as my eyes dropped on one colony, I saw a sudden excited bunching of the bees on the front of the hive, a bit above the entrance. Stepping closer, I found a queen the center of attraction, presumably a young one just returned from her nuptial flight. What a time she had finding her way into the entrance, or at any rate, what a time she took. She went nearly to the top of the hive, then nearly back down, then around the corner to the side. Presently I held my hive tool in front of her, and she obligingly ran on it. I laid the tool in the entrance, but she wandered off down on the grass, all the time with a goodly following of eager attendants. At last, however, she climbed back up the alighting board, and ran into the entrance.

One thousand, seven hundred and nineteen hives burned! Didn't Jamaica act quickly and severely when foul brood came her way? What would our Fire Department, that rushed so vainly but valiantly forth to extinguish a one-hive fire, have done with such a mighty conflagration? Well, anyway, it sounds thoro.

We have seen no further sign of disease since promptly treating our one tragedy. I have been expecting to find it in the swarm this colony had cast about two weeks before the trouble was discovered, and over which, in approved orthodox style, I had set the super from the parent hive. So far it is free, however.

"Shade is convenient, but not essential," Mr. Buchanan says, page 360, June. Mr. Bartholomew used to assert the same thing, —that shade was in no wise essential.

Last month a neighbor returning from a visit to Chattanooga told me of having been seriously ill while there. Shortly after breakfast one morning she seemed threatened with a violent headache; soon, becoming dizzy and very sick, she rose to leave the room. Thereupon she fainted dead away, and, after being restored to consciousness, was taken with horrible nausea and vomiting. Her hostess and friends were distressed and gave her the best possible care. Of course she ate no lunch. The others did, however, and soon afterwards two others became ill about the same way. A doctor was called, and questioning developed the fact that my neighbor was the only one who had eaten honey for breakfast, while the other two ate it for lunch. This honey had just been brought down from the mountains, where the mountain laurel had been for some time in full bloom. Repeated reports of similar trouble make a bad case against this beautiful blossom. I recall when I was attending a reception in a near-by county a few years ago, how lovely the summer home looked with great jars of mountain laurel thru all the spacious halls and on the wide

verandas, and how emphatically a young lady disagreed with me when I exclaimed in admiration over its beauty. "I certainly don't like it," she declared, "it poisons my father's cattle."

It was two weeks ago that we brought home the supers from the little country yard, to extract. A double-handful of bees that came with them collected on the corner of the screened window of the shed where we extracted. Mr. Allen loosened a few tacks and let them out. Ever since then, they have hung collected in a little bunch there on the outside corner of that screen wire. Two weeks is a long time, isn't it? But just the same, there they are.

Bee-escapes usually work well when they work, but about one colony in ten doesn't empty the super thru them at all, for us. The bees just don't go down. We looked ours all over before putting them on, boiling up most of the escapes to make sure they were not choked with propolis, yet a few supers had about as many bees the day after escape-boards were put under them as before. In only one was the escape clogged, where a drone had wiggled himself into a misunderstanding with the escape and died in its clutch. Bees in these supers were brushed from the combs.

There was no disturbance at all in getting the honey away from the yard, tho it was taken about 50 feet on a wheelbarrow and stacked, awaiting the delayed truck. We were painfully particular to keep it covered while thus being carted out of the yard. But returning the empty supers, when of course the process was reversed, the supers being stacked on the ground by the driver and immediately wheeled to the colonies, there was a different story. The truck reached the yard about seven o'clock, but the bees were on those empties faster than they could be wheeled down and put back on the hives. And after they were all on, there were menacing rows of bees along every crack and a decided uproar in the yard. It could not last long, however, at that hour. Beginners will do well to believe that there is a sound reason for the advice not to return wet extracting-supers till evening.

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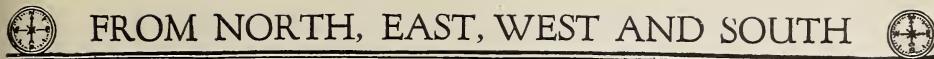
THE UNCAPTURED SONG.

My soul stood silent on a hill
Of listening. And something sung!
Bright flocks of sky-born vibrant things
In sun-blind distance hung.

From out the blue of heaven they flew,
And high in heaven stayed.
Across and thru its heart of blue
They swung—and swayed.

The far sweet drift of sun-loved song
My tense soul strained to hear;
"O flashing, rhythmic, far-off wings,
Fly near! Fly near!"

I listened long, but lost the song—
My empty world is still.
Some other time my soul shall climb
A higher hill.



FROM NORTH, EAST, WEST AND SOUTH

In Texas.—The new foul-brood regulations have been sent to every beekeeper whose name appears on the mailing list in the office of the State Entomologist. No doubt there are many who are interested in these regulations who have not received a copy. Such parties should make application for Control Circular D of the Experiment Station. These regulations are greatly changed from those formerly in force, and it is to the interest of every beekeeper to acquaint himself with them.

H. B. Parks, formerly with the Extension Service of the A. and M. College, has accepted a position with the Experiment Station. Mr. Parks has traveled widely among the beekeepers of the State and is thoroly acquainted with every section and its problems. In his new work, in charge of the work of the experimental apiaries, this close contact with the apicultural conditions of the State will be of special value. All of those who are acquainted with the work which Mr. Parks has done in the past, feel that in his new line of work he will be able to secure results of great value.

Beekeepers are urged to prepare for the apriary exhibit at the State Fair this fall. T. P. Robinson of Bartlett, who is in charge of this work, has requested the co-operation of every beekeeper in making the exhibit the most attractive that has even been shown. The war has placed honey before every household and it is up to the beekeepers to retain it in this position. Good premiums are being offered, which should prove to be an inducement to many.

Henry Brenner of Seguin has returned to Santo Domingo after a visit of six weeks in Texas. Mr. Brenner has extensive yards that have been developed during the war. He feels that the future of beekeeping in the islands is very bright. Mr. Brenner has been responsible for the introduction of late methods and an excellent stock of queens.

One hears among other questions, "When is the price of honey going to come down?" This is a rather difficult question to answer; but one thing is certain, the beekeepers are doing all in their power to push down the price of honey. In one section there has been a very good crop of honey harvested, and every one seems to feel that it is necessary to put this honey on the market at once. They have been warned time and again that this is not a good marketing principle. Extracted honey was bringing as much as 16½ cents f. o. b., loading station. Now there are plenty of beekeepers who are begging to sell their honey at 10 to 11 cents. How is it going to be possible to command the respect of the public for honey when such practice is so common? There will soon come a time when co-operative organization can not offset such practice. It is now due to co-operative selling organizations that all honey is not 10 cents. And

do such beekeepers think there can be any money in such selling? One has only to recall that supplies in general have increased 100 per cent in cost to see the fallacy of selling honey on a pre-war basis. Why do the beekeepers continue such suicidal practices?

Local and sectional rains prevailed over the State during May and June. In such localities the honey crop has been short. Colonies have been observed to consume all surplus during each rainy spell. The probable honey crop has been more difficult to forecast this year than for many past.

College Station, Tex. F. B. Paddock.

* * *

In Ontario.—Reports received to date (July 9) seem to point to the fact that the white-honey crop for Ontario this year will be very light. Some 8 or 10 counties are included in these reports and they run from nothing at all to 50 per cent of a full crop. As an exception to the rule, the locality around Lindsay in Victoria County will have a good crop. Abundance of rain there all thru the season tempered the extreme heat and kept the clover alive, while 15 miles north of Lindsay where we have one apiary, everything was literally burnt up so far as clover bloom was concerned. Last year conditions were exactly reversed in those localities, which goes to show that one season is not sufficient to size up the honey possibilities of any location. For the first time in my experience we have obtained quite a respectable surplus from raspberry. At the apiary 16 miles north of Lindsay already referred to, the colonies were so strong that I was at a loss to know what to do to hold them in during clover provided the latter yielded like last year. But that immense force of bees so early in the season proved a real bonanza for this year, as they were in shape to take advantage of the raspberry flow, which was better than usual. With no clover flow at this yard, bees lost all desire to swarm; and, after all our planning to hold down swarming, we find the precautions needless unless something unusual happens to bring on another flow. When the clover season is over swarming is always reduced to a minimum, no matter how much honey comes in—at least that has been our experience.

Following the extreme heat of over a month, with temperatures running from 90 to 100 in the shade all the time, we have now had heavy rains and cool weather. Basswood has a great showing of bloom; but here in Markham hardly a bee is to be seen on the blossoms as yet, so it looks like another failure from that source. However, we do not count on basswood any more, for it fails to yield nectar five years out of six in our various locations.

Speaking of the heat wave, I cannot resist telling of the experience of some good



FROM NORTH, EAST, WEST AND SOUTH



friends who motored from Pennsylvania during the time we had our most extreme heat. They had a great amount of luggage with them, and by a roundabout way I learned that they had brought lots of heavy underwear with them to wear while up in "cold" Canada. I jokingly asked them why they were not utilizing all those extra garments at the time they were at our place—the thermometer standing at 98 degrees at the time. But if they come up here some time next January or February I will advise them to bring the same equipment along, even if they didn't need it this time.

Honey prices are being discussed these days among the beekeepers fortunate enough to get a crop, and about every mail brings letters asking my opinion on the matter. Frankly I do not have any idea as to how prices will run. Everything else is so very high in price that I hesitate to make even a guess at prices for honey. Raspberries are bringing 37 to 38 cents a small box today in Toronto in a wholesale way, retailing out at 40 or over—we are shipping raspberries to dealers and honestly I am ashamed to take such inflated prices for such a small article of food. But what is a person to do in such a case? The dealer pays the price with no bargaining on the seller's part, so the only way I see to square up is to take the money and then shell out some of the proceeds to needy institutions. But there is something wrong, and I tremble to think of the final outcome of this orgy of high prices for food if it is continued too long. If export to Britain assumes proportions to amount to anything, honey will be as high as last year or higher. If there is no export demand, I do not think honey will be as high as last year—especially buckwheat—even if the crop is light. That is my guess, and time will tell if it is a good one or not.

Speaking of buckwheat, prospects were never better than they are this year for a crop from that source. Recent rains are bringing along hundreds of acres, and, as there has been practically no swarming, colonies will all be in the best of condition to take advantage of the flow if it should yield. But prospects were never better for clover than this year, and yet few localities have obtained very much from that source. Beekeepers, however, are always hopeful, so I am looking for tons and tons of buckwheat honey this year, provided the buckwheat yields nectar.

This mysterious disease going under different names, understood by no one seemingly and quite appropriately best known as "disappearing disease," gave us a call again this year. During all the extreme changes of the spring and all of June we watched the yards for signs of the disease, but none appeared even if the weather was very hot and dry or very cool and wet. On

July 1 we noticed quite a number of worker bees and drones traveling fast in an aimless way so far as directions were concerned, but eventually ending up in piles of bees wherever there were any hollows in the ground. The next day there were thousands of bees crawling around so thick that one could not walk thru the yard without tramping on many of them, and the next day there were none crawling around, and hardly a bee since. I have no explanations to offer. The days the bees were dying were the days that clover yielded the most for the season. The weather was hot and clear.

Markham, Ont.

J. L. Byer.

* * *

In Northern California.—During the past month there has been much discouragement among beekeepers thruout almost our entire section. It might be said and without fear of contradiction that colonies were in better shape both as to bees and brood during March and April than they were in June. May and June were both "downhill" months, due to continued cold days and nights and windy weather. At this writing (July 5) your correspondent doubts whether there is much more than a ton of honey on his colonies at the present time, whereas last year at this date over 12 tons had been extracted. Beginning with July alfalfa commenced to yield. At various points thruout our section grasshoppers (central) and army worms (southern) have caused considerable damage, but on the other hand butterflies are not near so prevalent as they have been during the past two years. The factor, however, that concerns the beekeeper most is the condition of the colonies at the present time. Despite continuous feeding by many beekeepers there are thousands of colonies in the valleys today that have not more than five or six frames of brood and hardly enough bees to work in the supers. Should we take it for granted that there will be an excellent fall flow, nevertheless we may not expect a full crop this year. Alfalfa is the mainstay, and on the first few weeks of flow from this source the bees are building up to full strength, which necessarily means less honey. In the southern part of our section alfalfa is going to do better than the forecast of a few weeks ago indicated. Of the fall plants alkali weed looks the most promising, and this is especially true thruout the eastern part of our southern section. The stand of bluecurls is not of the best, and we need not anticipate much nectar from this source.

What are we going to get for our honey? This question is now being asked constantly. Unquestionably, California will have a short crop, for orange and sage were off and alfalfa will be. The California Honey Producers' Co-operative Exchange will market almost all of our honey, and its officials know



FROM NORTH, EAST, WEST AND SOUTH



that our crop will be short. It is the writer's belief that light amber honey will sell from 13 to 15 cents per pound, and that white (15 to 30 per cent of our honey grades is white) will bring from 15 to 18 cents. At present it seems that the U. S. crop will be slightly less than normal. During the past three years the value of honey imported into the country increased about eight times the normal, and the value of honey exported increased nearly ten times. During the same period exports of sugar decreased to about one-third the normal amount, and the three-year period likewise shows a falling off of over four million tons in the world's production of sugar. For some years to come Europe will need sweets, and with increased shipping facilities the demand for this food should be met. Furthermore, the above indicates that honey is being recognized to a much fuller extent. Prior to the war, the United States produced a full crop of honey which was almost entirely consumed in the country. It is up to our Exchange to make the most of this demand, to analyze the markets thoroly, and to distribute the crop thru the best possible channels. It is a big task and a hard one.

Last week the writer had a very pleasant visit from E. R. Root. He seemed to like our section and was much impressed with the wonderful opportunities which it affords. Mr. Root concurs with the writer that the migratory beekeeper has a great future. This phase of beekeeping may be summed up in the following few words—it's hard work but it pays.

Modesto, Calif. M. C. Richter.

In Southern California.—Honey market conditions are at present hard to ascertain. The greater part of the crop of the State is to be handled by the California Co-operative Exchange. A few producers outside of the Exchange report sales at 18, 19, and 20 cents per pound for extracted honey.

It is now a demonstrated fact that the honey crop of southern California is to be a very short one. In ordinary seasons, June first finds your correspondent with about half of his honey crop made. This year I have made no surplus honey since that date.

On a recent trip (June 17 and 18) of about 160 miles across much of the honey-producing territory of Riverside and San Diego Counties, very little honey had been extracted. The vegetation looked well in some sections where the spring rains had been quite plentiful, but those sections are scarce. In most locations a light crop was predicted, but in some places no surplus honey was expected.

A large producer, one with long experience also, reports about 65 per cent of a crop for Imperial County. The cool nights during May and the first half of June cut

the flow from the alfalfa very materially. While these large irrigated valleys always produce some honey, it takes ideal weather conditions to make a big crop.

The oranges, as has already been reported, yielded from 20 to 60 pounds per colony. Sixty pounds were produced in only a few cases. An estimate of between 35 and 40 ears of orange honey (250 cases to a ear) of California was made at a recent meeting of beekeepers. A large per cent of this will be consumed on the Pacific Coast.

Many more beekeepers than usual moved to the orange groves last spring. The same is true in regard to the lima-bean fields this summer. Many who in ordinary seasons would move from the oranges to the sages, this year moved from the oranges to the bean fields. As the beans are just beginning to bloom, it is yet too early to tell how plentifully they will yield nectar. Some of our old-time Ventura beekeepers have for years successfully moved from the purple-sage ranges to the bean fields of Ventura Co. Originally Ventura County was considered the bean county when we spoke of lima beans; but for the past 12 or 15 years the industry has grown until now Los Angeles and Orange Counties stand as close rivals in the quantity of beans produced. Some growers recognize the value of the bees as a pollinating agent and welcome the bee-men. Others are not so friendly when a man is looking for a location for an apiary. Many beekeepers feel it is a profitable step to take, and they move to the beans even tho the bees may get only enough honey for winter stores and to build up well in the spring. Any late flow that will give this result, allowing one to extract all of the orange honey, will pay for moving this year.

Chas. Kinzie of Riverside caught a large swarm of bees on April 22. It was put in a ten-frame Langstroth hive, comfortably filling the body and two supers. Drawn combs were given as needed. On May 22 the colony had 28 frames of brood, and 165 pounds of orange honey were extracted. On June 25 seven supers were on, containing lots of honey, brood, and bees. Can you beat it?

A beekeeper came today (July 2) to get permission from the county inspector to move his bees from an orange location to one in the San Jacinto Mountains in the eastern part of Riverside County. This last location is at an elevation of nearly 5,000 feet, and the white sage and wild buckwheat are just coming into bloom. These higher altitudes got more rain and will produce honey later than those lower down. The mountain ranges are hard to get to, as most of the roads are poor. The bee pastureage being thinly scattered over large areas makes it necessary to have small apiaries smaller and further apart than when located in the orange and bean sections.

Corona, Calif. L. L. Andrews.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Young Queen Leaves Bees and Brood to Return Home.

The strangest and most remarkable bee behavior which ever came under my observation was witnessed in 1915. In going thru one of our colonies, we found that the bees had reared a young queen and she was laying on the same comb with her mother. The old queen appeared to us to be as good as ever and, the colony being unusually strong, we decided to divide it. We took three frames of brood with the young queen and put them on a new stand about 25 feet away from the parent colony. Three days later we looked into this new hive and found that the bees had deserted the brood and what honey was present. My partner, Mr. Marzian, and I stood and looked at each other for a moment, wondering what had happened or why those bees had absconded. He then suggested that we look at the parent colony, and see if those bees had gone back home with the young queen. Upon opening the old hive we found the young queen again on the same comb with her mother. Now did the young queen lead those bees back home or did she follow the bees back home? She had but recently mated, and it is possible that she remembered the location of the old hive and further knew that her mother was failing and that she was needed at the old home. We tried the experiment again, but this time clipped the young queen, and of course the new colony remained and built up. The old colony now built queen-cells and in due time another young queen was laying, working right along with her mother and both queens were usually found on the same comb. It being late in the season, we left both queens and hoped that the old queen might live thru the winter, but in the spring the old queen was missing.

I have never read of a case like the above, that is, of a young queen returning to the old parent colony after being put on a new stand with plenty of bees, brood, and honey. Has such a case been observed or reported by any one else?

Earl C. Walker.

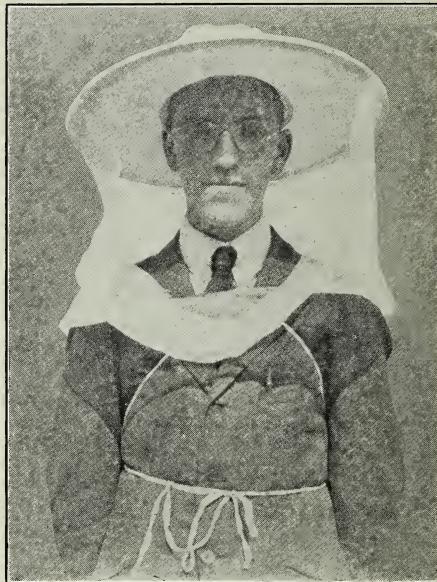
New Albany, Ind.

Reaction of Bees to Colors.

There is not the slightest doubt that honeybees will sting black more than white, as has been and can easily be shown again experimentally. Let any reader dress himself wholly in white, including gloves, veil, and hat; and, after binding a wide black band around either arm, open a hive and violently shake the frames. He will at once receive overwhelming evidence that the bees will sting black more than white, for the black band will be covered with angry bees while on the white portions of his clothing there will be very few bees.

There is not the slightest doubt that honeybees will sting black

(For further experiments see Gleanings, Oct. 1, 1913, page 687.) According to my observations black or German bees do sting a black veil more than they do a white one,



This veil is made of white tulle with a square of black silk tulle inserted for the face, giving the visional features of a black veil. Not only do the bees sting this veil less than a black one but also since white reflects heat while black absorbs it, this veil is much cooler and is a decided improvement on the black veil.

and it is largely my practice to wear a white veil, altho such a veil is more difficult to see thru.

Bees also sting red more than they do white, as was well known to the beekeepers of the Middle Ages according to Edwards' "Lore of the Honey-bee." I find by experiment that this statement is entirely correct. If Frisch of Munich is right and honeybees are color-blind to red and can not, therefore, distinguish it from black, then it is entirely natural that they should react to red in the same manner as to black. But I am compelled to add that I am not entirely convinced that bees can not see red as a color.

John H. Lovell.

Waldoboro, Maine.

Uses Large Can For Sterilizing.

This year I have cleaned several hundred frames, leaving the wires in. Here is the way I do it: I bought a second-hand galvanized oil can large enough to set a hive into. In this can I placed some supports upon which the frames

HEADS OF GRAIN FROM DIFFERENT FIELDS

are piled. The supports should be high enough above the bottom so that there will be room for the melted combs beneath. I use a piece of canvas to cover the can. Anything that will make it tight will do. Two pails of water are then put into the can, the combs placed on the supports, the can covered, and a fire built under the can. The hot steam soon melts the wax on the frames; the combs become loose, and a few sharp raps on the frames while hot leave them cleaned and sterilized, ready to put new foundation into. The hot combs are stirred up well and dipped out into the wax-press.

In foul-brood cases, when sterilizing hives, supers, etc., one should leave them covered in boiling water for half an hour.

Of course, there is some wax sticking to frames and hives; but I find that the bees sometimes use a part of this, so there is practically no wax lost. D. Gibbs.

Wapakoneta, O.

An Easy Way of Painting Hives and Supers. When visiting one of the prominent bee-keepers of the county recently I found him stacking up new supers approximately ten high, the bottom one resting on a box about 15 inches tall. He then carefully straightened the supers so they were all even and laid a piece of railroad iron on top, presumably to hold them down. My curiosity was aroused as to what was to be next, when he picked up a bucket of paint and a four-inch brush and painted that stack of supers in less time than I have seen taken to paint one super or hive body. When I saw the speed with which he did a very good job of painting it struck me as a joke to remember the painting of one super at a time and trying to keep one's hands out of the paint and then finding some convenient spot to place the painted super to dry. Of course the idea is ancient history and may have been in the bee journals times without number before; no doubt Father Langstroth did it first. But I have questioned other bee-keepers and have found more than one who had never thought of it and who still wrestled with supers and hive bodies one at a time while painting them. Maybe, after all, there are a few of the younger generation who may save time by remembering that with a wide brush a stack of supers or hive bodies can be painted almost as rapidly as a single one. J. H. Tibbs.

Fincastle, Va.

How Queens End Their Careers. What kind of a death a queen dies when she ends her career—this I first learned of my old tutor in 1881, when I saw a queen crawling outside of the hive. Also careful observation since that time has

confirmed what he said, that the queen when she commences to fail lays eggs in several queen-cells, allows a queen to hatch and usually remains in the hive with her for a week or two after she commences to lay. Then the old queen leaves the hive and dies. But I have found exceptions to this rule, as I have found her sometimes on the comb and a few times on the bottom-board nearly or quite dead.

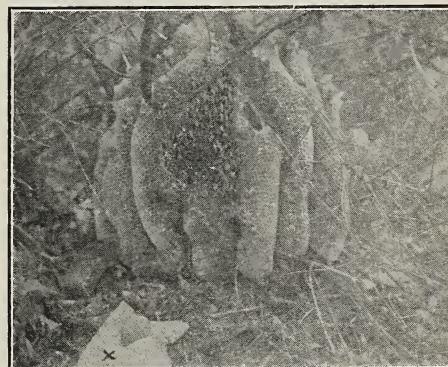
If the conditions are normal, the bees or young queen hardly ever kill her or drive her out of the hive. (If the hive were disturbed or robbers about, it would be different.) When the queen finds that she is of no more account, she does the same as an old bee does, just leaves and dies—why I do not know; perhaps she is in pain, but of this I suspect we shall never be certain.

Binghamton, N. Y.

C. W. Phelps.

How Much Room Did These Bees Need?

I inclose a print of a colony of bees located in a bush near my apiary, first discovered on the afternoon of April 30. Altho they had all outdoors for room, and the sky for a roof, they cast a swarm on the morning of May 16 while I was working in my honey-



These bees swarmed with all outdoors for room and the sky for a roof.

house, which is between the bush and the apiary. When smoking the bees back as in the inclosed print, I saw some honey in the combs. Also there is sealed brood, which is covered by bees in the evening.

San Diego, Calif. Jas. A. Nelson.

Esparsel Honey, Better Known as Sanfoin.

In the time I have been reading Gleanings (over four years now) I have never seen any mention of the honey made from esparsel. This plant is grown by some of the ranchmen in this neighborhood for a

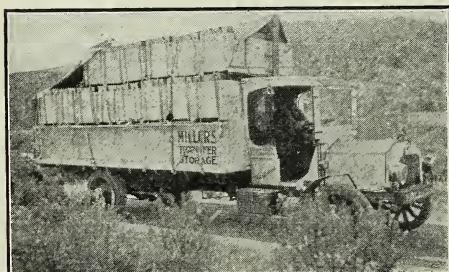
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forage plant. Their fields are a bright pink with its flowers shortly before I find the first alfalfa blossom. The bees seem to be working on it quite busily, and the honey that appears in the supers at that time is very nice. It is a delicate honey of a pale-yellow color that makes a pretty appearance in the section, and it does not candy readily. A few years ago one of the merchants in our nearest town sent me word that if I had "any more of that honey made from flowers—not out of alfalfa," he would like some of it. Since then he has always insisted on having yellow honey, and has explained to me that for his personal taste he finds alfalfa honey too much like granulated sugar syrup. I have suggested to him that a case of the white and a case of the yellow side by side offer a pretty contrast, and that some of his customers might choose one and some the other; but while the other local merchants do not seem to care which I bring them, he remains firm in wanting only the yellow. It was the kind of honey that we take to be esparte, which is very superior, that first prejudiced him in favor of the yellow honey; but he does not discriminate when I take him other kinds, and we have several kinds of yellow honey. I suppose "the trade" would speak of them as amber. We get only a comparatively small amount of the white alfalfa honey, as we are at an altitude just under 8,000 feet here in the Wet Mountain Valley, and the alfalfa plant is not cultivated very extensively. It does not make as rank and rapid a growth, and therefore pay as well, as in the lower warmer altitudes.

Westcliffe, Colo. Mary T. Comstock.

[Sainfoin is raised extensively in Europe, but is not very common in our country.—Editor.]

Moves Twenty-seven Truckloads of Bees Every Year. This picture shows 96 two-story ten-frame hives of bees arriving at their new location 98 miles from their former home. We loaded this truck at sundown, started at an ele-



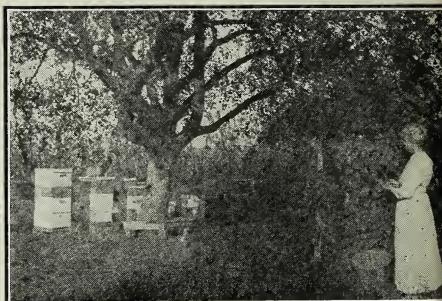
vation of 841 feet, passed thru one mountain range, and 4,100 feet in the second range.

The canvas on top of the bees is to keep the hot desert sun from smothering them. I move an average of 27 truckloads of this size every year, and never lose a colony. I never sprinkle the bees with water, for every one I gave the least bit to always smothered. It does not pay to haul bees such a long distance unless you are sure of a large crop of honey. The largest percentage of my bees are in three-story ten-frame hives, which I believe is the best hive for this locality; but it does not pay to haul three-story hives so far. A. E. Lusher.

Pasadena, Calif.

Thinks Everyone Should Keep Bees.

Everybody ought to keep bees, it seems to me. We started with a runaway swarm which came from a public building. The bees pollinate our fruit and



Apiary of Cora June Sheppard.

furnish us no end of sweets. I do all my canning and preserving with extracted honey; and during the war I used honey for cake, and liked its flavor and keeping qualities. We also made icecream with honey. We learned to get along without sugar during the war. The bees have proved to be wonderfully interesting, and last season they supplied us with \$90 worth of honey.

Shiloh, N. J. Cora June Sheppard.

Summering Difficult in Japan.

I think the term "summering" will be a new one to you. There is no flower for the bees, unless in an exceptional locality, throughout the summer months in Japan, especially in the middle and southern parts of the country, altho any kind of garden flowers is scarcely ever to be seen.

There is some continuance of rainy weather almost day by day during 30 days in early or middle summer. It is not so hot as to melt the combs in hives; but wax moths have a chance to breed.

Suppose, how will the bees do without any pollen and nectar to gather, and with so

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long a period of rainy weather. The sum-
mering must be the most important and
most difficult problem in place of wintering
for us. Of course, the feeding of sugar
syrup, combs of honey, and supplying arti-
ficial pollen may be done, but that is ex-
pensive. If the colonies are left with plenty
of breeding room and plenty of stores, breed-
ing produces a great many bees and this
uses much honey. Some practice going with
their bees for another honey flow in the
north part of the country or any other spe-
cial locality. Some practice destroying super-
fluous bees out of necessity to carry thru
the bees' strength for autumn increasing.

In place of destroying those superfluous bees, some are intending lately to sell in pound packages to any fellow beekeeper in their locality. Other beekeepers make, with superfluous bees, a new colony, and some allow wax production in a new hive without giving any comb foundation; and there are some expert beekeepers who practice to prevent or to control breeding and egg-laying in the honey season by using a queen-cage. In place of the queen-cage some experts use a queen-excluder between the super and brood-box, and two frame-shaped queen-excluders in the brood-chamber to limit the queen's laying to one, two, or three combs.

Moreover, some experts manage with virgin queens in the place of fertilized queens during the honey-harvesting season. Some even dequeen the colony, altho there are some troubles with queen-cells, and derogation of bees' spirit to work. At all events, it is believed that is an effective and profitable plan for extracted-honey production and "summering" of bees, because non-breeding or limiting of laying is an economy of the bees' energy, utilizing the breeding force to the gathering of honey and increasing hive capacity by supplying so many comb cells without brood. Therefore the smaller force of bees to pass the summer months is economy. Is it not so?

But the colony, being reduced in numbers of bees, must be increased for autumn work upon fall flowers, and to go wintering with abundant stores and a multitudinous force. To do this, of course we treat them as in spring.

Summering, autumning, wintering, and springing ought to be done well, of course. In some localities, as in our own, "summering" should be considered as a real problem at least. Is it not so?

Yasuo Hiratsuka.

Tara, Gifu-ken, Japan.



THE BACK LOT BUZZER

THE BACK LOT BUZZER.
Ma says she wishes they'd hurry up and settle who's goin' to be queen in that hive by the apple tree. They've swarmed so often that there is nothin' left in the old home but Bolsheviks.

“THE bee-keeping fraternity, I think, should appreciate the article of Mr. Joseph H. Peterson of Garland, Utah, under the head, ‘It Works Very Satisfactorily,’ in April, 1919, Gleanings, page 227. His method is decidedly the most satisfactory I have ever used for fastening foundation in frames. He does not name the tool he describes, and I wish to suggest ‘Sticker’ as a good name. It is short and appropriate. Any one can make a sticker. I made one from a piece of scrubby cedar I cut several years ago on top of Stone Mountain near Atlanta as a souvenir, and it works fine. Choose a hot day for using the sticker, and have the cup of water handy, as suggested by Mr. Peterson, to keep the foundation from sticking to the sticker.”—L. K. Smith, Carroll County, Ga.

“Has it ever happened for any one else that a queen was received in a shipment of honey. I received from Florida a seventeen-case shipment of section honey, and upon opening it found a virgin queen running around as spry as a cricket. I had a queenless colony, so I introduced her successfully, and now have a fine yellow prolific layer. She is a beauty.”—G. E. Leavitt, Hamilton County, Tenn.

“E. G. Norton, a progressive beekeeper of Nevada, produced over \$32,000 worth of honey from 600 colonies last season, or an average of \$53.33 per colony. Some people are rather skeptical as to the chances of ‘making good’ in the bee business. In fact, one man told me that it was rather a risky business to enter. As far as I can see personally, more money is made out of bees for the amount of capital invested than from any other established business in the world.”—Bevan L. Hugh, Santa Clara County, Calif.

“About 20 years ago I was a cripple as the result of muscular rheumatism. I was advised to keep bees, which I did. After handling them one year and getting stung a number of times, the rheumatism left me. I had bees for five years, and I had no pain. I quit for two years, and the rheumatism came back. At once I bought some more bees and have never had rheumatism since. I have doctored with the best doctors this State has, but the only cure found is bee-stings. One of my hives this day has 32 pounds of capped honey on top of the hive body, and I put on another super.”—Gillmore O. Bush, Orange County, N. Y.

“About two weeks ago I visited the rice mill at Beaumont. Going down the platform I noticed quite a few bees flying around. Upon investigation I discovered that they were working in the end of a box

BEES, MEN AND THINGS

(You may find it here)

car. The men on the platform said that the car had just been set in that morning. After prying off one of the boards we found that they had a large brood-nest and a lot of surplus. I have wondered if the car had been on a siding for some time to allow the bees to accumulate the stores, or if the coming brood was sufficient to keep the colony working while the car was being moved from place to place. I never saw nor heard of a similar incident.—C. H. Deabler, Hardin County, Tex.

“One day while getting a hive ready for bees, a number of bees came flying about the empty hive. Thinking it a good plan I set the hive down to let the bees clean out the little honey that remained, and thus have it nice and clean for the ones ordered; but the bees never left, and in less than one hour the hive was occupied by a strong colony. Three days afterward I moved the hive to a permanent stand. Two days later bees were flying in great numbers over the same spot, so I brought another empty hive and set it down with the same results. Immediately the hive was occupied by a strong colony. This makes two strong colonies. Each came the same way and on the same place.”—Edwin F. Kuhn, Cumberland County, N. J.

“Crop conditions in this section—clover, none; honeydew and dark (yellow) honey, liberal enough only to keep the bees breeding and spoil the clover honey (if there had been any).”—Chas. F. Hosier, Montgomery County, Pa.

“Yesterday I was in a red-clover field and heard bees humming. I watched and found that they were working on the red clover. In a short time I found that they were working on imperfect heads. There were a great number of grasshoppers in the field, and they had eaten the bloom to some extent. Where the heads were eaten the bees were able to get their tongues down to the nectar. At times they hesitated at a perfect head, but seemed to know at once that it was no use and passed on. So far this is a poor year in this locality. The bees are fine, but they have gathered no surplus. There is some white clover—in some places enough to give a whitish cast to the ground, but there are no bees on it.”—R. R. Ramsey, Monroe County, Ind.

“Thanks for the ingenious smoker which we found of great help during the present epidemic of influenza. It is an ideal apparatus for aeration in hospitals, sanitariums, and in private homes. Several families having fallen suddenly ill at once, I took two smokers and stuffed them with dry eucalyptus leaves. I then went to the bed-

side of the invalids on all sides and at all hours, running from ranch to ranch, throwing out clouds of smoke which the patients received thankfully. No danger of fire anywhere. Having performed this arduous work among the stricken people, none of them died but all were benefited. An amount of aromatic and balsamic substances was doubtless absorbed by the patients. One could notice a gratifying diminution in the coughing experienced by children and all other patients. When a doctor can not be had, and one is isolated in the country, this treatment would prove of great benefit."—Pedro Flores Gomar, Acatanango, Guatemala, Central America.

"I noticed in Gleanings a discussion in regard to blowing into 60-pound cans to test them for leaks. Why not just screw the cap on tight and then place the cans in boiling water? The air inside will expand instantly and give the can all the test it needs."—Wm. C. Kelsey, Cook County, Ill.

"Unless we have large quantities of old combs to render, and are equipped with a regular manufacturer's outfit, the use of a wax-press is not at all necessary. Twice boiling and once remelting in a water-jacket, with a little scraping of the dark sediment from the bottom of the cake will extract practically all the wax and produce a first-class merchantable article."—G. C. Greiner, Niagara County, N. Y.

"I would have replied earlier to the question, 'Does beekeeping pay where beekeeping conditions are ordinarily favorable?', but I was 'too busy making beekeeping pay' to find time to collect my thoughts sufficiently to write a few readable sentences. I am convinced that the nature of a person has a great deal to do with his success in any field of endeavor; and unless a person follows an occupation that appeals to him he is more than likely to be unsuccessful—certainly not eminently successful. Undoubtedly, there are many people not fitted by nature to be good beekeepers, and to whom the occupation of beekeeping does not appeal, while others may almost be classed as natural beekeepers. I believe that, unless a person loves bees and likes to work with them, the probability of his making much money from them is very slight. But if, in addition to a natural aptitude for this work, a person has sufficient executive ability to care for bees in one or two out-apiaries there would seem to be no reason why that person, in proportion to the time and money expended, should not make more in beekeeping than in almost any other business, and do this in congenial environment and amid healthful surroundings."—Elton Warner, Buncombe County, N. C.

"Mr. George Launey, a prominent young cotton man of Savannah, has demonstrated that this intangible something called 'bee fever' is contagious. Recently he purchased three box gums of fine Italians from a lady

of Savannah. He obtained from the supply man several hives in order to transfer his pets to modern homes. He took the 'paraphernalia' up to the big office where he is employed, and soon had the whole force busy assisting in setting up the hives and supers. All were busy, when, presto! who should walk in but the boss? Did he fuss? Not a bit of it. He looked on for a while in silence, and then he grabbed a hammer and went to work too, and in the meanwhile told in broad Scottish accents of the old-time ways bees were kept in the 'auld country.'"—L. W. Chovatt, Chatham County, Ga.

"This is a great valley with 40,000 acres of irrigated land which abounds with alfalfa and sweet clover. B. M. Caraway of Mathis, Tex., is the only extensive beeman here. He has a nice start of 1,000 colonies. Bees have come thru in fine condition."—D. F. Leonard, Wyoming.

"Recently an unclipped queen was in the act of making her escape, and she would probably have been followed by the swarm; but I quickly put a dab of honey on her wings and the flight was all off."—Sam Houston, Orleans County, La.

"I have some colonies that have stored honey wonderfully, two of them having five supers full, and our best honey flow has not yet started."—T. W. Gentry, Stokes County, N. C.

"I have fought both American and European foul brood; and, with the assistance of our able inspector, J. E. Crane, have stamped them out and have had no sign of either for three years."—C. H. Crofut, Bennington County, Vt.

"This is the driest May and June in the memory of the oldest settlers here in central Montana. In a radius of two miles our bees can reach nearly a thousand acres of alfalfa and sweet clover which, on account of the drought, have not yet begun blooming. The prospects are very poor."—A. E. Trapp, Fergus County, Mont.

"I have always heard it said among bee-men that they had never seen foul brood in a bee-tree. I myself have been a bee-hunter all my life, and I have made a close examination in every tree that I have cut, and I had never seen a bee-tree affected with the disease until the other day. We cut down a bee-tree with the intention of transferring the bees to a hive. They were black bees, and had the worst case of foul brood I ever saw."—Henry S. Bohon, Roanoke County, Va.

"If I had not fed 500 pounds of sugar to my bees in the spring I should not have secured half a crop, as the colonies were slow to do more than build up. Those that had enough in the spring and were not fed, did not do as well as those that were fed liberally to stimulate brood-rearing."—Judson Jones, Putnam County, O.

"I noticed a knot on a black-gum tree and spoke of the striking resemblance it bore to a cluster of bees. I was told that an old man who formerly lived in that community and kept bees, kept also one of those gum knots, on a pole, which he called his bee-knot. When the bees would swarm out the old man would set up his pole with the knot among or near the swarming bees. The knot at a short distance presents exactly the general appearance of a cluster of bees. When a few bees light on the knot it has the appearance of a large cluster, and the statement of my informant was that the bees usually would form a cluster covering the knot. The old man would then shake them off into the hive or near it. He thus saved swarms which might otherwise have run away, and also saved himself the trouble of hiving them from inaccessible places."—W. B. Romine, Giles County, Tenn.

"A cousin of mine has some very mean black bees. Last year he got a neighbor to hive them for him. They just simply ate him up, and, of course, he lost his job. This year I got the invitation to try them. So I read up in the bee book on points that I needed, and particularly on opening hives. I prepared for the bees just as nearly as the good book said—opened the hive, got all the honey, put the super and top back, and stayed by them as long as I wanted to, and went back in the house with lots of nice comb honey, and not a bee offered to sting. The owner of the bees stood in the house looking out the window. I know that, from reading the bee papers I'm taking, I know very little about bees; but I'm very much interested, and I'm going to learn lots more."—L. J. Davidson, York County, S. C.

"I still have some American foul brood. Nearly all the bees here have died from it. I have written the State and Federal authorities about it repeatedly; but while they are suggesting educating the beekeeper to get rid of it, it is still getting worse."—J. E. Turner, Darke County, O.

"In Tasmania the bees this season made a splendid start, but they made a bad finish. I am afraid a lot will have to be fed to carry them thru the winter."—John H. Jenkins, Hobart, Tasmania.

"We got 416 pounds of honey from one swarm when we had but the one swarm, and those bees lived in the same hive without renewal of any kind for 24 years, when the hive rotted."—Lloyd Z. Jones, Henry County, Ill.

"Popular talks and actual demonstrations at our central apiaries by competent and experienced beekeepers are much needed in Nebraska over much of the State. There has been a wonderful improvement in the possibilities of scientific bee culture in Nebraska in the last ten years, largely owing to the extension of sweet clover. This

hardy legume is adapted to a great variety of soils. It is a soil-builder, and will probably have a recognized place in the rotation of crops on the best-conducted farms of central and western Nebraska and Kansas. The much-execrated beeman of 30 to 50 years ago, who sowed sweet clover by stealth after dark at the risk of personal danger if detected, is now considered a public benefactor in this section of the State. The trans-Missouri region is now indeed a land flowing with milk and honey, as both are being pushed to profitable extension and conservation. Popular field meets are essential in every county of the State till the losses of bees in wintering will be as rare as the loss of good dairy cows from starvation."—Karl Aldrich, Nemaha County, Neb.

"*Merrils vs. Goodwin*: A man's finding a tree of bees in another man's land gives no right to the tree or the bees, unless they went from his own hive. Error to reverse a judgment of a justice in an action of trespass, *Goodwin vs. Merrils*, for cutting down a tree in the woods that had a swarm of bees in it and taking the honey which the plaintiff had previously discovered. The defendant pleaded in bar that said bees were a swarm from his hive; that he frequently lined them to near said tree; and that said bees were his property. The plaintiff replied that he found the bees in the woods and had good right to take them. To which reply a demurrer was given. The judgment of the justice was that the plaintiff's reply was sufficient, with 30 shillings damages. Judgment—Manifest error. By the Court: A man's finding bees in a tree standing upon another man's land gives him no right either to the tree or the bees; and a swarm of bees going from a hive, if they can be followed and known, are not lost to the owner but may be reclaimed."—From *Root's Reports*, Vol. I, 1764-1793, Litchfield County, August Term, Superior Court, A. D., 1790.

"Our librarian told me Saturday that it was impossible to keep any bee books on the shelves so great was the demand for bee literature."—S. H. Burton, Daviess County, Ind.

"I have obtained a crop of honeydew of the usual dark color, which granulated immediately. Ants on removing it leave a white, almost tasteless powder, which would seem to show that the granular portion is not all sugar. It was gathered principally from oak and beech."—H. D. Tennent, Morgan County, O.

"I have met beekeepers 150 miles east and also west of Phoenix. Regarding the honey-producing part of Arizona, they report only one-sixth to one-fourth of a crop. My 19 apiaries are located 55 miles up and down the Gila River. Half of my yards have no honey to extract. Small insects suck the nectar from alfalfa as fast as secreted."—B. A. Hadsell, Maricopa County, Ariz.

NO *SEMA apis*, says G. F. White in the July American Bee Journal, was reported as long ago as 1857. The germ that causes the disease is a one-celled animal parasite. This parasite has a vegetative form and a resting spore form. When the latter forms are taken into the stomach of the adult bee, with the food or water, the digestive fluids act on the covering of the spores and release the young parasites that then invade the wall of the stomach, where they multiply enormously, producing quantities of spores which are voided with the excrement, thus becoming a source of infection to other bees.

In the experimental yard, when inoculating for the disease, Mr. White says the colonies were fed a pint of sugar syrup to which had been added the crushed stomachs of diseased bees. Most of those which became infected were middle-aged bees. In outward appearance such bees are quite normal, but the diseased stomach is lighter in appearance than a healthy one. It is more easily torn, and when crushed it has a milky appearance. In a late stage of the disease the walls of the stomach are white.

Altho *Nosema apis* under certain conditions may kill a colony, still the disease is not very infectious, and the usual effect is simply to cause a weakness from which the colony readily recovers.

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Saving a few cents in the cost of a shipping-container at the expense of higher freight rates is poor economy.—American Bee Journal (July).

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Thru the instrumentality of the Tupelo Honey Exchange, according to the Dixie Beekeeper for June, the Legislature of Florida has made an appropriation of \$10,000 for inspection work in the State.

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It has been estimated that there is more profit, with less investment and labor, in 300 colonies of bees than in 160 acres of farm land.—The Beekeepers' Item (July).

* * *

I believe the price of section honey is going to rule high for some time to come, and pay well those who are willing to produce, pack, and market it with care.—J. E. Crane, American Bee Journal (July).

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HOW ROBEY REARS QUEENS.

E. G. Carr, in the July American Bee Journal, explains how Robey raises queens. To prepare the cell-starting colony he moves it from its stand, replacing with a hive of four combs of honey and pollen and one of brood. Four combs of bees from the re-

THE BEST FROM OTHERS

Iona Fowls

moved colony are shaken into the prepared hive, and in five hours fifteen grafted cells are given after removing the frame of brood. (These grafted

cells are Doolittle cell cups into which, after priming, are grafted very small larvæ.) The next morning the started cells are given to the upper story of a strong colony for completion. When the queen-cells are ripe, they are given to nuclei, containing two or three frames, the frames being of such a size that three will just fit into a Langstroth frame. Mr. Robey uses some twin mating-hives and some hives containing four nuclei. The small frames are stocked by placing in bodies of such a size as to carry twelve frames crosswise, two such bodies being used as a colony.

To insure well-fed larvæ late in the season he removes the larvæ after they have been fed two days, and replaces with very small larvæ, shaving down the cups with a hot sharp knife. The larger size of the resultant queens pays well for the extra trouble.

* * *

Another season's experience in hiving swarms, both natural and "shook," with an empty body below the frames of foundation, convinces me of the value of the method in preventing absconding swarms. A swarm, immediately after hiving, needs a large quantity of wax, and the opportunity to cluster compactly with no division of the cluster by frames or combs, seems to facilitate the secretion of wax. I have never known a swarm to abscond when hived in this way.—The Western Honey Bee (July).

* * *

Colonies which have been transported from one spot to another some distance away in the spring show more activity than others that have remained at the old stand. There appears to be something in the change of surroundings or in the shaking-up which they have experienced which impels them to greater activity.—American Bee Journal (July).

[We have often noticed that bees moved in the spring breed up faster than others, and are, therefore, in better condition for the honey flow.—Editor.]

* * *

We may need larger brood-nests; yes, but let us make them by adding a second story, thus giving the queen the room she needs just where she needs it. Especially is this desirable when using 8-frame hives. With me, this practice greatly decreases manipulation, as well as the propensity to swarm. One scattering of the brood after the second story has been on a few days, is usually sufficient.—The Western Honey Bee (July).

QUESTION.—I have a stock of bees that originated from an apiary that was Italianized about 40 years ago. During all that time these bees have never been stationed closer than a mile and a half from other bees. Under such conditions what is the probability of my bees having become mixed with other breeds, thereby needing to be Italianized again? They are clearly marked as the Italian bees are described. G. M. Depew.

Kentucky.

Answer.—It is indeed remarkable if you have been able to keep your Italian bees pure without requeening for that length of time. We would certainly expect them to mix with hybrids or blacks if there are such bees within a mile and a half.

Question.—My bees cut wax foundation along the wires. What can I do to stop them?

Michigan.

Maurice Geary.

Answer.—It is possible that the wires were imbedded too deeply in the foundation. This sometimes causes bees to cut the foundation along the wire; or it may be that no honey was coming in at the time the foundation was given. In such a case the feeding of a sugar syrup until the foundation is partly drawn would prevent the bees from gnawing the foundation.

Questions.—(1) Will you please advise me as to keeping my colonies so close that their hives almost touch each other? Is it better to place them some distance apart? (2) Will keeping them in the sun hinder them from working? (3) Is it necessary to use an inner cover next to the roof, either with sections or extracting frames?

Alabama.

Geo. P. Smith.

Answers.—(1) It is advisable to have the hives a short distance apart. If too close the bees sometimes become confused and go into the wrong hive. Young queens are easily lost in this way. In our apiaries we like the hives at least six feet apart, and doubtless a little further would be better. (2) Some shade during the hottest part of the day is desirable. If too hot, the bees often loaf, and we have known them to swarm and leave in very hot weather when a little shade would have remedied the trouble. (3) An inner cover should be used as well as the outer for either section or extracted-honey production.

Questions.—(1) It is sometimes recommended not to put in all the frames of full sheets of foundation at one time lest it discourage the bees. Should the vacant space be left in the middle or at one side? (2) Please tell me the common prices for extracting a neighbor's honey.

Alabama.

Wiley Gentry.

Answers.—(1) Any good colony ought not to be discouraged by giving a full set of frames of foundation. However, it is better to insert one or two frames of drawn comb in the center, for this will give the queen a place to lay at the very start, and the bees will be much more inclined to be satisfied. If possible it would be well to insert a frame containing some young brood. The

colony would not be nearly so apt to swarm out. When giving frames to nuclei the frames are usually crowded over to one side of the hive; but in no

case should one leave a vacant space in the middle of the hive, nor should one ever leave a space in the hive of a full colony, since the bees would be certain to fill the space with crooked comb. If foundation is given when no honey is coming in, it will be necessary to feed in order to get the foundation drawn into comb. (2) About two cents a pound would be a fair price for extracting a neighbor's honey. At this price it would be a paying transaction for both parties.

Question.—I am sending you a fly which I caught. These flies take a bee around the body with their legs and hug them tight, and seem to have a bill which they drive into the back of the bee and then eat it. They take bees in the air also, and take them off the board in front of the hive. There are many of them here, and I am afraid they will kill the bees out here in this territory. They also bury the bees and keep doing it all the day. Is there any way to stop it?

Kansas.

Charles Engelman.

Answer.—This is a species of the dragon fly. They are rather troublesome throughout the South. Aside from moving the apiary we know of no way of stopping the trouble.

Questions.—(1) Do clipped queens ever grow new wings? I clipped mine about two months ago, and had to clip again recently, but I imagine she has been superseded. (2) Is it possible to make increase after the honey flow in the fall?

New York.

Arthur M. Cole.

Answers.—(1) Queens do not grow new wings after they have been clipped. Your queen was evidently superseded. (2) It is possible to make increase after the main honey flow in the summer; but after the fall flow it would be rather late, and unless your colonies are remarkably large ones we would hardly advise this. The division should be made in time so that the colonies may arrange their brood-nests for winter.

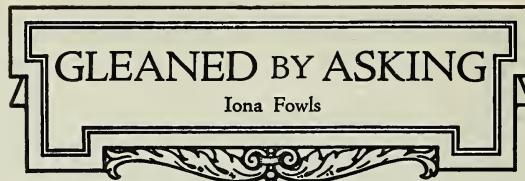
Question.—I had a swarm the other day, and put it in a new hive on the old stand, moving the old one away. In half an hour another swarm came from another hive and clustered on the fence. When it came back to the yard it went straight in with that other swarm, and did not go near the hive it came from. Why was this? During the ten years I have kept bees they never did this before.

Pennsylvania.

C. Shindledecker.

Answer.—Swarming bees from different colonies often join each other, not seeming to distinguish their own swarm from any other. It is possible that a few stragglers were still going into that new hive, and this swarm noticed it and went in with them. Or it may be that they heard those bees and recognized them as swarming bees and therefore joined them.

Questions.—(1) Why do you and others recommend a black veil, at the same time stating that bees detest black, and say that black clothes, par-



ticularly a black hat, should never be worn? (2) If for any reason one desired to place an empty brood-chamber under one occupied already by the bees, when, if ever, would the bees go to work in the lower empty chamber? (3) In the second and later swarms do the queens leave the old hive supplied with eggs and brood? G. W. Johnson.

Maine.

Answers.—The principal reason that the black veil is used is because it is less trying on the eyes. However, a white veil with a piece of black across the face, in the line of vision, proves much cooler than the black veil, and we have found it quite satisfactory. (2) Bees naturally store honey above, and therefore, during a honey flow, they would be likely to crowd the queen out of the upper story into the lower one and fill the upper one with honey. (3) Usually, and with capped queen-cells.

ANSWERS BY J. H. LOVELL.

Question.—This year the sugar company will have several acres of sugar beets which they are putting out for seed. Can you tell me whether the sugar-beet blossoms yield nectar or pollen for bees? If nectar, can you tell me anything of its value as a honey plant, or of the quality of honey made from it?

W. L. Walling.

Montana.

Answer.—The small greenish flowers of the beet have a pungent fragrance, but yield little nectar. There is a great abundance of pollen. The bloom is visited chiefly by small flies and bees, but not frequently by these. Visits by honeybees are rare. In Utah, thrips (tiny insects) visit the flowers in large numbers, as many as 190 having been collected from one small raceme. As there are many pollen grains scattered over their bodies, they doubtless often effect pollination. Observations extending over five years showed that the visits of larger insects were few. The beet is, however, dependent on insects for cross-pollination, as the flowers are self-sterile.

Question.—I have searched all my bee books that treat on honey plants, and I have failed to find mentioned there the plant my bees are working on. I should be pleased if you would write something about this plant. Its name is pleurisy root (*Asclepias tuberosa*). It is also called butterfly weed. The bees work on it all the time, and it stays in bloom about six weeks or longer; but there is not very much of it here.

G. L. Perry.

Texas.

Answer.—Butterfly weed, or pleurisy root (*Asclepias tuberosa L.*) grows wild from Maine and Ontario southward to Florida and Texas. It is called butterfly weed because it is adapted to pollination by butterflies, which visit the flowers so frequently as to attract attention. More than a dozen different kinds have been captured while feeding on the nectar. The slender awl-shaped horns, or nectaries, are so long that only insects with long slender tongues can suck up all the nectar. Honeybees and some wild bees also resort to the flowers. The plant gets the name pleurisy root because a decoction administered several times a day affords relief in pleurisy, catarrh, pneumonia, and pulmonary complaints. Under favorable conditions the milkweeds secrete

nectar freely, and colonies have been reported to store 10 or more pounds per day for a week or two. The honey is water-white, and possesses an excellent flavor and a heavy body. They bloom from the last of June to August. The milkweeds are usually classed as noxious weeds, and directions are given for their eradication; but in most localities they appear to be harmless. Some farmers claim them beneficial to the soil. The seed germinates readily, but the young plants are reported to be rather tender. If the soil and climate are suitable, the plants will be likely to multiply rapidly without any attention. The common milkweed (*Asclepias syriaca*) is the species most valuable to beekeepers, and, if any species are cultivated, would seem to be the most desirable. I would not recommend the butterfly weed for this purpose, as the horns or nectaries are so long that honeybees are probably able to gather only a part of the nectar. If the supply is scanty they might not be able to obtain any of it. If it is desired to cultivate some one plant for honey, sweet clover or alsike clover would seem to be the most suitable.

ANSWER BY DR. C. C. MILLER.

Question.—In June Gleanings, page 389, Miss Fowls recommends as a swarm prevention a plan of yours. Is this a modified form of your excluder plan of treatment in "Fifty Years Among the Bees"? In this new plan what is to prevent the queen in the upper hive from swarming out in a day or two? She states that the colony will be so weakened by the loss of field bees that the idea of swarming will be abandoned. This hive is no more weakened thru the loss of its field bees than any hive would be after a natural swarm, and still we have secondary swarms from such hives.

Herbert Schulz.

Answer.—The plan Miss Fowls gives is the "put-up plan" given in "Fifty Years," and is not a prevention of swarming, but a treatment to keep the forces together after swarming. Either Miss Fowls or the printer has made a mistake that might be serious. She has the queen put up any time within 10 days after swarming. That should be 5 days, for if left 10 days a virgin would be likely to emerge and go off with a swarm. [An error of the proofreaders.—Editor.] You think because there are after-swarms in ordinary natural swarming, there should be swarming in the present case. The two are quite different. In the one case a lot of sealed brood has been turning into bees for the past week or so, there is the vigor of increasing strength, plenty of honey is coming in, and everything looks promising. In the other case there is the present feeling of vastly decreased numbers, not a drop of honey is coming in, and everything threatens disaster. In the one case there is a giddy young virgin, ready to go with a corporal's guard; in the other an experienced matron that would scorn to go with anything less than a strong force. At any rate, as I have proven hundreds of times, it is as Miss Fowls says, the panic-stricken bees tear down all cells, and all thought of swarming is given up.

Immediately after the main honey flow the bees will require but very little attention. The colonies should, however, be examined to make certain that each is in normal condition, and has plenty of stores and a good queen. Some colonies during the honey flow have the brood-chamber so filled with brood that nearly all of the honey is crowded into the supers above. If not attended to right after the flow, such colonies may be in actual need.

Need of Brood-rearing.

Because of a lack of stores or a lack of energy in the queen, caused by excessive egg-laying earlier in the season, queens sometimes almost cease laying at this time of the year. The beekeeper can ill afford to permit this state of affairs, for successful wintering demands plenty of young bees; and since it requires five weeks from the egg to the mature field bee it is evident that many eggs should be laid the last of August and the first part of September in order that the old worn-out bees may be replaced by young ones that have had the opportunity for a number of good flights before cold weather. This time which applies in the clover regions will vary, of course, in other latitudes.

Requeening.

Any beginner who has not already requeened with good Italians should do so this month. His best plan is to purchase untested queens from a reliable breeder; yet if he has a number of colonies and wishes to experiment raising queens some easy way, we suggest the following plan:

Select a fairly strong colony of bees, preferably hybrids, and remove their queen. Feed them one pint of thin syrup a day, unless there is a good honey flow at the time. Three days later go to the colony containing your best queen and remove a frame containing no brood. Then move part of the frames over, leaving a space in the center of the brood-nest. In this space insert an empty drawn comb that is clean and bright. Six days after making the first colony queenless, destroy all of their queen-cells and give them from the Italian colony this frame, which should contain eggs at this time. In the part of this comb where the eggs are laid, cut out two long horizontal strips of comb about one inch wide. Along the tops of the spaces thus made the bees will build nice straight queen-cells.

On the eighth day after this colony has received the comb, remove the queens from all of the colonies to be requeened. Two days later carefully cut out the queen-cells from the prepared comb and place them in spiral cell-protectors and distribute to the

TALKS TO BEGINNERS

By Iona Fowles

queenless colonies, hanging each cell in the center of the brood-nest, where it will be kept warm. These virgins should hatch in about three days,

and should be found laying eight to twelve days later.

Care of Comb Honey.

Getting the honey in marketable condition will be an easy task for one with but two or three colonies. The sections should be removed from the super, and all wax and propolis scraped from the exposed surfaces of the wood. If the knife slips ever so slightly, the beautiful surface of the comb may be marred so that extreme care will need to be taken when handling the sections. The beginner will need no shipping-cases, since his best plan will be to dispose of his honey to his neighbors and friends. If any is to be kept during the winter it should be put in a warm room—preferably between 70 and 80 degrees.

Preparing Extracted Honey for Market.

The extracted honey may be kept in large cans until needed for market. It may then be run into one-pound glass jars or into larger or smaller jars if the local trade demands it. A clear colorless glass should be chosen in order that none of the beauty be lost. If one will fill such a jar with some of his best honey, and place it in the window where the sunlight may strike thru, showing the honey in all its sparkling beauty, he will never be guilty of using a green glass such as is ordinarily used in canning. There is no reason why a small producer should sell at a low price. His article should command as high a price as that of the large producer, if not higher.

No Robbing During the Honey Flow.

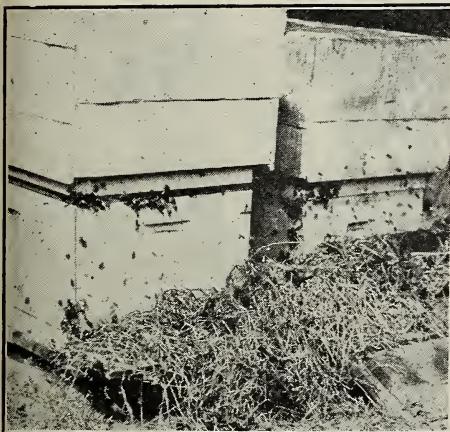
During a heavy flow of honey it is sometimes possible to leave honey exposed right in the apiary, and yet no robbing result. Last summer, during a good flow, we left a broken and dripping comb of honey on top of a hive for several hours, and yet not a bee touched it, so industriously did they work on the fields of clover. This ignoring of the exposed honey may be partly due to the counter-attraction of the loud humming of bees at work on the nectar, but more likely to the behavior of the other bees and to the distinct and alluring trails of aroma left by the bees in their flights from the fields.

Time of Robbing.

The bees show no inclination to rob during a good flow; yet as soon as the flow ceases they are on the alert for any sweets within reach; and when a heavy flow stops suddenly we have often seen the bees scouring the whole neighborhood in search of

more nectar. If a door or window of the honey-house is left open, the bees find it without delay.

Not only when the flow ceases, but at any time during a dearth of nectar, exposed sweets soon start the bees to robbing. It is rather puzzling to understand why no robbing results when nature exposes her sweets in the form of acres and acres of nectar-laden flowers. Yet thin nectar never causes the intense excitement of exposed honey. During a dearth, when bees find pure honey, absolutely free for the taking, they become intensely and wildly excited,



Grass thrown loosely in front of the entrance and kept dampened helps to stop robbing.

and rush thru the air in a mad frenzy to and from the honey and hive. Unless steps are immediately taken to stop the trouble, the high keynote of the demoralized robbers soon attracts the bees from other colonies, and thus the numbers increase at an amazing rate until the entire apiary is in a fearful turmoil. Angry bees may be seen fighting, curling up and stinging each other, or stinging any person who may chance to be near.

Robbing Weak Colonies.

Not always do bees rob as furiously as this. Sometimes a weak or perhaps a queenless colony, because of its defenselessness, is plundered by robbers from some of its prosperous neighbors. Such robbing may begin in a very quiet way, but is likely to develop into more serious robbing before the fracas is over. After the bees have robbed out a colony in this way they usually make a similar attempt at every other entrance in the yard, hoping to find another as defenseless as the first.

Bees at Play.

This quiet robbing we have just described should not be confused with bees at play. When young bees fly for the first time it is very important that they recognize their hive upon their return; therefore they fly in circles in front of the hive, learning to recognize it from every angle. This may be

noticed during the middle hours of a summer day, yet a close observation will show no real robbing—only a happy circling about in front of the hives.

How to Recognize Robbers.

After once witnessing a bad case of robbing in full progress, the high-pitched note and swift, rapid flight of the vicious, demoralized bees, one would have no difficulty in again recognizing the trouble; but it is quite important that he be able to do so at the very start when it is comparatively easy to stop the trouble. Whenever the beginner notes any unusual activity in front of a hive, he should determine whether it is the beginning of robbing or only bees at play. If robbing, there will often be a few bees, some of them dark, shiny-looking ones, attempting to enter the hive while alert guards stationed at the entrance will be most vigorously challenging their right to enter—often grabbing them and pulling them from the hive, perhaps curling up and whirling about on the entrance board, attempting to sting the intruders.

When a colony is being robbed out, bees may be seen running up the front of the hive and then, as they take wing, falling a little in their flight because of their heavy loads. Young bees often run up the fronts of the hives in this way, yet their flight is much lighter. If there is any doubt in the beginner's mind as to whether such bees are robbing, he should catch one and determine whether or not she is carrying a load of honey.

Seriousness of Robbing.

Robbing should never be tolerated. Not only are great numbers of bees killed but sometimes entire colonies are destroyed, especially nuclei too weak to defend themselves. No matter what the source of supply, when it is exhausted the robbers will attempt to rob out their weak neighbors, and after robbing has once occurred it is much more likely to be repeated. Also, if there are any diseased colonies in the neighborhood, these are the very ones that will be most likely to be robbed and thus the disease spread. If it is absolutely necessary to work with bees when they seem inclined to rob, a netting bee-tent should be used, large enough to cover hive and beekeeper.

To Stop Robbing.

In mild cases of robbing, the entrances should be contracted, and over the fronts of the hives that are being robbed grass should be thrown loosely and kept dampened.

If a colony seems quite unable to defend itself, it should be placed in the cellar for a day or two, and a hive containing a small amount of honey left in its place. As soon as the robbers have used up this honey they will quiet down; while if no honey were left they would begin robbing another hive.

When only one colony is doing the robbing, perhaps the easiest and best way of meeting the difficulty is to change places with the robbed and the robbing colonies.

H. B. PARKS has resigned his position as extension apiculturist and has accepted a position with the Experiment Station as apiculturist at College Station, effective July 1, 1919. In this work Mr. Parks will have charge of the experimental apiaries as a result of a special legislation recently enacted. Communications to Mr. Parks in the future should be addressed to the Experiment Station, College Station, Texas.

* * *

Dr. Ernest Kohn of Grover Hill has received 300 colonies from the tupelo region in Florida. These colonies, since arrival, have been storing part of the time from 12 to 20 pounds of clover honey per day. At the end of the season they will be returned to the Florida fields.

* * *

An enterprise of considerable interest to beekeepers is to be launched at Pasco, Wash., under the auspices of the Chamber of Commerce. A joint stock company will be organized by the members of the chamber to establish and conduct an apiary on a considerable scale. The idea is to supply pure-bred queens to improve the strains for the district of which Pasco is the center, which is regarded as especially well adapted for honey production. The plan provides for a distribution of possible profits between shareholders and a fund from which educational loans will be made.

* * *

The Arkansas Beekeepers' Association was organized May 31 with the following officers: Frank Harsfall, Monticello, president; J. M. Reynolds, Batesville, vice-president; J. E. Clark, Pine Bluff, second vice-president; Miss Sophy Reed, secretary-treasurer, 1601 Battery St., Little Rock. Talks were given by Ray McKnight, Hugh McCain, S. F. Rameson, Prof. W. J. Baerg, J. H. Tull, field agent in marketing; J. G. Ferguson, State Commissioner of Agriculture, and L. W. Boyden of the A. I. Root Co.

* * *

The combined meeting of the Philadelphia Beekeepers' Association and the Pennsylvania State Beekeepers' Association was held at the School of Horticulture for Women, near Ambler, June 14. Among the speakers were Charles N. Greene, chief apiary inspector, and professor of Zoology at Harrisburg; Secretary J. E. Rambo of the Philadelphia association, J. L. DuBree, T. L. Wertz, Dr. Shortlidge, and others.

* * *

The East Tennessee Beekeepers Association was formed June 26. There were about 200 present, and a number of good addresses given. A representative of the East Ten-

JUST NEWS

Editors

nessee Division Fair was present and authorized an increased appropriation for premiums for beekeepers. The meeting, on the whole, was a splendid success.

G. M. Bentley, the State Entomologist, was chosen president and given power to appoint as his co-workers a vice-president from each of the 24 counties of East Tennessee. Mrs. J. B. Young was selected as secretary and treasurer.

* * *

The Eastern Massachusetts Society of Beekeepers held an unusually successful field meet on July 26 at the home of Charles L. C. Mallory, Worcester Boulevard, Boston. The editor attended.

* * *

A good crowd was present at the Lenawee County Beekeepers' Association's field meet at the apiary of A. S. Tedman, near Weston, Mich., on July 18. Beekeepers attended from several adjoining counties of Ohio and Michigan.

* * *

A field meeting of the New Jersey Beekeepers' Association was held at Fred Mulden's apiary, near New Vernon, on July 19.

* * *

The Michigan State Beekeepers' Association held its annual field meet at Boyne City on July 22 and 23. The speakers were B. F. Kindig, C. W. Wing, J. D. Robinson, Ira D. Bartlett, Kenneth Hawkins, and Edwin Ewell.

* * *

The Western New York Honey Producers' Association held a field meet at the apiary of Adams and Myers at Ransomville, N. Y., on July 26.

* * *

E. R. Root hopes to meet many of his friends at Delphos, O., Aug. 7, at the Ohio State field meet. The roads leading to Delphos are very good, and many will doubtless make the trip by auto.

* * *

The Monroe County Beekeepers' Society, New York, will meet at the home apiary of its president, Louis F. Wahl, Scottsville Road, Lincoln Park, N. Y., on Saturday, Aug. 9, at 10 a. m. All are welcome, whether members or not.

* * *

The beekeepers of Wayne County, Mich., will have as their guests the Washtenaw and Oakland County Associations at Plymouth on Aug. 22. The editor expects to attend.

* * *

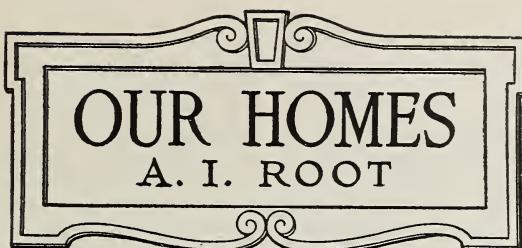
The Wisconsin Beekeepers' Association will hold a beekeepers' chautauqua Aug. 25-30 on the old Lake Monona assembly grounds at Madison. Among those who are planning to attend are E. F. Phillips of the Department of Entomology, his assistant, G. S. Demuth, and the editor, E. R. Root.

THERE are some people, and I believe some good ones, who insist that the world is not growing better. During the recent great war they declared wars are going to continue and grow worse and worse until Jesus comes to establish the new heavens and a new earth. A few days ago my youngest daughter, Mrs. Carrie Belle Boyden, said to me something like this:

"Father, I am like you. I never have the blues. I am always hopeful." Dear friends, was not that a rare compliment, and one that came from very near "home" too? Ever since that time I have been thinking it over and over, and wondering if the dear child *had* got it right. I call her "dear child" even if she is the mother of two bouncing and blooming little girls. Well, Carrie Belle was pretty nearly right, so far as *she* has been acquainted with her father; but before she was born—before the dear Lord lifted me out of the "miry clay"—I *did* have the blues—yes, terrible blues—only such blues as no human being can ever experience, who has *not* been in the clutches of the great adversary of humanity. Let me digress.

The first record we have of murder is where Cain killed his brother Abel; and it begins to crop out thru the scriptures all along thru the history of humanity. Esau declared he was going to kill his brother after his brother had cheated him out of his inheritance—that is, after the good father, Isaac, should be dead and out of the way. We are all very glad, however, that Jacob repented and begged pardon, and the two brothers became friends again some 20 years afterward.

Well, the Bible makes a record of worse murders; and I am afraid that, as the centuries passed, the wars became greater and greater and worse and worse, until the one, *world-wide* war, or almost that, such as we have just witnessed. I am not very well versed in history; but so far as I know this recent war eclipses all of former date. I hope it is true that no other war on record resulted in the death of *seven millions* of



Thy kingdom come; thy will be done on earth as it is in heaven.—MATT. 6:10.

Thou shalt not kill.—EXODUS 20:13.

Nation shall not lift up sword against nation, neither shall they learn war any more.—ISAIAH 2:4.

Of the increase of his government and peace there shall be no end, upon the throne of David, and upon his kingdom, to order it, and to establish it with judgment and with justice from henceforth even for ever. The zeal of the Lord of hosts will perform this.—ISAIAH 9:7.

here in the United States; and if a young woman happened to be remarkable good-looking, and some vicious man wanted her (no matter for what purpose), if he had the money to "pay the price," she was his to do as he pleased with her, just the same as his horses and cattle were his. While this continued my whole soul rebelled against it; and when some of the good professors of Oberlin College were arrested and put in jail because they assisted runaway slaves in getting to Canada I felt the impulse of war in my own heart—that is, if nothing *but* war would put a stop to it. Well, God sent a good man to stand before Satan's emissaries and declare that no human being should be held in bondage and bought and sold any more. This celebrated "Emancipation Proclamation" resounded thruout the world, and it inaugurated a new era. But it cost the man his life. He died a martyr. I said something of the kind in the prayer meeting some days ago, and asked if there was any spot on the face of the earth just now, where human beings are bought and sold. Nobody seemed to know of any such place; but somebody finally suggested that in the wilds of Africa they have just discovered a small spot where there is something of the kind going on. If true, the march of the missionaries will very soon put an end to it. If there are still unexplored wilds where such heathenism exists, the new method of navigating the air will help us to carry the "glad gospel" into such places.

Well, after *slavery* was put "down and out" a protest was made against the great lotteries—the Louisiana State Lottery, especially, a great institution with the colored people. I do not know who had the

men on one side and about that many on the other. Some of our readers, perhaps, can tell just how many millions were lost all together. Let me now digress again.

When I was old enough to begin to read the papers I learned with much sorrow that not only men and women but boys and girls were bought and sold

credit of ending that wholesale gambling institution, but I am informed that Uncle Sam did it by closing the mails against it and against all papers that gave it any publicity.

Away back in that time there was a group of fanatics—at least a great part of the world called them fanatics—called “teetotalers”; but these teetotalers were inspired by the Lord Jesus Christ, and for that idea they bled and died to bring about prohibition. The wealthy brewers laughed them to scorn. I have told you all about it again and again; but, may God be praised, I have been permitted to live long enough to see the United States triumph over intemperance just as our nation did over the downfall of American slavery. Some of you may remind me that the fight is *not* quite over. That is true. But it soon will be over; and not only over for the United States but for the whole wide world. The dear Savior, when he taught us how to pray, gave voice to our first text—“Thy kingdom come, thy will be done.” Now, it would be preposterous to think that he asked us to pray for something that would never be granted. *God's kingdom is coming here on earth*, and I believe our good President was exactly right in insisting that if wars are not ended all at once they will very soon be ended, and that no more will bloodshed and murder be necessary to settle differences between nations. Not only are the swords going to be beaten into plowshares, and spears into pruning hooks, but the great institutions for the manufacture of war implements also will be relegated to the junk-heap. These men-of-war that cost millions will be in no way needed. I begin to wonder what we shall do with all the money when peace and prohibition become universal all at once. In the first place, we shall use a lot of it to see that no helpless women or children on the face of the earth die or even *suffer* from starvation.

And there is something else on the way, and coming fast. I do not mean, friends, flying across the ocean and carrying passengers in air-ships; but I mean these little civil wars that are beginning to crop out between capital and labor. Almost while I dictate these words a car strike is being settled in the great city of Cleveland. For something like 24 hours not only the electric railway company but all the police seemed unable to protect the carmen so they might carry people. All sorts of business were at a standstill. Many thousands of dollars were lost by this one day's strike. There was violence, and I think a little blood was shed, but no murder, thank

the Lord. I do not know whether one individual or a company of individuals was instrumental in bringing peace out of the turmoil or mixed-up matters; but it came, and things are going on now quietly as usual.

I think one lesson that comes to the people of that city is that this incident enables them to appreciate facilities for travel as they never did before.

We are having much said now by certain people in regard to the coming of the Lord Jesus Christ. Now, maybe I am not exactly orthodox, especially in the eyes of certain ones, because I insist that Christ Jesus *is* coming in spirit and *has been* coming steadily thruout all these years that I have been permitted to look about and see things in this world of ours. Perhaps even the men engaged in warfare do not see it, but nevertheless it is the real spirit of the lowly Nazarene that is bringing about these great strides that are ultimately to fulfill the promise in the text I have quoted, especially the concluding one—“Nation shall not lift up sword against nation, neither shall they learn war any more.”

My good friends, I have made quite a few predictions during the 60 or 65 years that I have looked over God's creation. One of the first things that impressed me was that bee culture, when it came into its own, was going to place honey side by side with milk, butter, eggs, and cheese, to be sold at every corner grocery and every day in the year. I thought it might take a score of years to bring it about; but it took almost three score. Then when I was delivering my talks on chemistry and electricity around in the schoolhouses I said that, instead of steam, we should soon run our cars by electricity. Of course I was laughed at. I thought it might be three or four years, but it took *forty or fifty*. When the Wright brothers first made that wonderful flight and whirled around and came back to the place of starting, I said that the feat would some time be recorded side by side with that of Columbus when he discovered America. That event, too, (flying) might have taken 40 or 50 years to bring it to pass; but this terrible war hurried things up so it has taken only 12 or 15 years from the first to enable us now to get across the great water with a flying machine in the matter of hours instead of days or weeks.

And now with the above introduction let me tell you what I think is going to happen soon; and may the Lord grant that it will not take 30 or 40 years to bring it about. If you will look back you will notice that God has raised up great men like Washington,

Abraham Lincoln, General Grant, and I might mention a score of others, until we come clear up to that great friend of worldwide humanity, Woodrow Wilson. Well, somewhere in this great wide world, if not in America then in some other country, some good, wise and God-fearing man will be found who has remarkable ability to speak peace to the troubled waters during these conflicts between capital and labor, and who will be able to say, as did Jesus to the turbulent waters of Galilee, "Peace, be still." Now do you see what is going to happen? When the cars are stopped, or

when the wheels in some great factory all at once stand still, a wireless S. O. S. message will be sent to this good man, and a flying machine will bring him to the scene of turmoil so speedily that in just a few hours (and maybe, if God permits, in a few minutes) things may start up, the "wheels commence to go round" once more, and everybody will be busy and happy.

Do you not believe it? Let us look again at the last part of my text—"The zeal of the Lord of hosts will perform this."



HIGH-PRESSURE GARDENING

"A LAND FLOWING WITH MILK AND HONEY."

And this, "milk and honey," from one and the same plant.

Our readers, at least many of them, will remember the articles in regard to sunflowers last fall. Well, some kind friend has just sent me the following from the *Jersey Bulletin and Dairy World*:

SUNFLOWERS GOOD SILAGE, MONTANA BUREAUS FIND.

Montana farm bureaus carried on numerous crop demonstrations last year and did notable work with tame sunflowers as a silage crop. Sunflowers under dry-land conditions made an average return of 10.25 tons of silage an acre, and under irrigated conditions 29 tons an acre. These demonstrations showed that sunflowers yield almost three times the tonnage of corn under similar conditions. This kind of feed is particularly adapted to high valleys which do not produce abundant corn. The quality of the sunflower silage has been demonstrated to be good.

Farm bureaus in Montana are the official organization thru which the State experiment station distributes pure and valuable seed which it has developed and increased. These organizations afford a reliable means whereby the experiment station can keep in touch with certain varieties of grain of proved worth. By working thru the bureaus it is possible to secure an equitable distribution over the entire State.

Prof. J. D. McVean, Extension Animal Husbandman of the University of Wyoming, gives some specific directions concerning the growing of sunflowers for silage. The following data are gleaned from his letter:

Yield.—Sunflowers have been grown in Wyoming both on dry land and on irrigated land. The irrigated land produced approximately twice the yield of the dry land, the yield on irrigated land ranging from 18 to 25 tons per acre.

Planting.—Distance between rows on irrigated land, under average conditions, should be 30 inches. Where soil is above average in fertility, 26 inches. Dry land rows should be at least 3 feet apart. Sunflower seed can be drilled with a regular drill, dropping seed every 3 to 6 inches in the row.

Cultivation.—The land should be prepared as for corn and the methods of tillage should be handled the same as for corn.

Seed.—The amount of seed will vary anywhere from 8 to 12 pounds per acre, depending on the width of row and distance between seed in the row. The cost of seed this year is somewhat higher than last year. Seed houses quote 25 cents per pound. The variety grown is the Mammoth Russian, and can be ordered from any reliable seed house.

Professor McVean says that he is firmly convinced that sunflowers are a Godsend to the farmers of the State, whose farms are at an altitude greater than is safe for the production of corn. Crop tests made in different parts of the State show that sunflowers can be planted earlier than corn, will stand more cold, will mature earlier, yield about twice as much per acre, and apparently are as valuable from a feeding standpoint as corn.

I take it from the above that the sunflower will do well on ground that is too poor to grow a good crop of corn; and under such conditions it may give twice the yield for the silo, and also produce a silage that is better for butter and milk than corn. It will stand more frost in cold weather than corn, as I demonstrated to my full satisfaction last fall. It will probably be too late to plant sunflowers when this reaches you, with any hope of growing seed—that is, in most localities; but there will be plenty of time to grow a splendid crop for cow feed, for cows will eat it greedily after they once "acquire the appetite," even if it should not grow more than a foot high. Of course, the part that interests beekeepers most is the honey; and where there are large acreages grown, especially with the view of producing seed, I think it must yield considerable honey. Just now I am testing a sunflower put out by Burbank, which he claims is not only a new creation but a valuable addition to the sunflower family.

In Burbank's catalog for 1919 he makes the following statement:

In 1909 sunflower seed was grown in the United States to the amount of 63,677 bushels. Last season

there was shipped out of one California town, by one buyer, 1,275 tons, for which \$76,000 was paid to the growers. Sunflower seed is used for feed and for oil.

Will some of our California friends please tell us *where* this great sunflower region is? and also tell us, if possible, if there are beekeepers near (and I take it for granted there surely would be); also how about the honey as to quantity, quality, etc.

OUR FLORIDA GARDEN AND SOME GLIMPSES OF OUR FLORIDA HOME.

During the past winter Huber paid us a visit, bringing along a kodak; and as he succeeded in getting some better pictures of things than I may have shown before, maybe you will think there is some repetition.

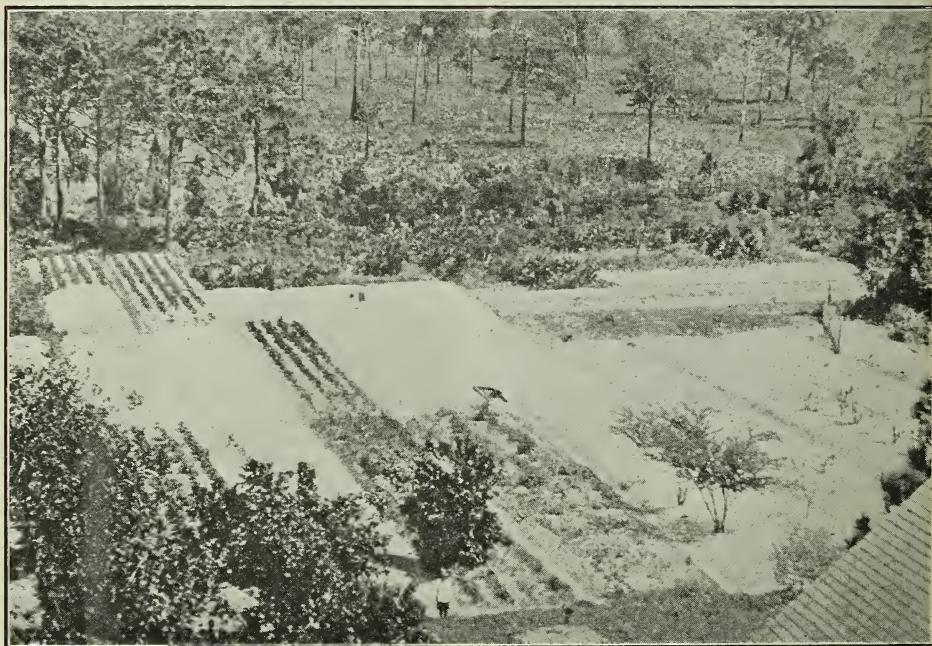
No. 1 shows our garden back of the house after most of the potatoes were dug.

No. 2 is a picture of the same ground about 50 days later, when the potatoes were

peas were mostly gathered we planted Triumph potatoes between the rows of peas. The potatoes matured and were sold, and Cuban flint corn planted in their place; and between the corn we planted velvet beans, see No. 2. The picture was taken May 20th.

The paths between the beds are deep enough so that when we have our great Florida rains, which come occasionally, my potatoes are never drowned out. In that loose soil the water is all out of the way before it can do any harm. After the potatoes are dug they are nicely washed and graded as firsts and seconds.

During the past winter, when I took my first load to the grocer I intended to tell him they ought to bring 50 cents a basket; but he understood that I expected to get 50 cents a basket. As they were very busy I did not wait for my pay for several days, and then was agreeably surprised to find he had sold them for 60 cents per half-peck basket, allowing me the 50 cents I mentioned, or \$4.00 a bushel. But our customers took



No. 1.—A glimpse of our Florida garden where I grew my potatoes in the winter time, at Bradenton, Manatee County, Florida.

dug and corn had taken the place of them. I have given it in order to show you the possibilities in Florida of not only growing two but even three crops on the same ground in one winter.

At the right hand of pictures 1 and 2 you will see a bed that runs clear down to the pine trees close to the drainage canal. Well, when we reached Florida the second week in November I planted garden peas, and we had a very good crop. When the

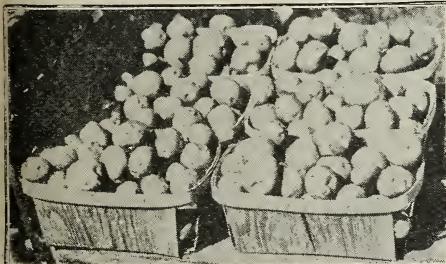
them off as fast as I could get them uptown, and at \$4.80, or almost \$5.00 a bushel. Perhaps one thing that helped the rapid sale was that I carried them to market in an electric automobile; and this automobile was stored by wind power. Next page is a description of the electric automobile, and also a picture of the windmill with dynamo right under the wheel that turns with the vane to the mill. This dynamo charges the storage batteries that propel the automobile.



No. 2.—A glimpse of our back-yard garden after the potatoes were dug and corn planted in their place.

The little girl in the cut is Huber's daughter, Katharine. She was named after the sister of the Wright brothers who invented the flying machine.

The garage for storing the automobile is seen in the background. Miss Katharyn Root was born shortly after the Wright brothers made their first successful flight and got back to the starting place. An account of this was first written up (and first given to the world) in *Gleanings* in 1905.



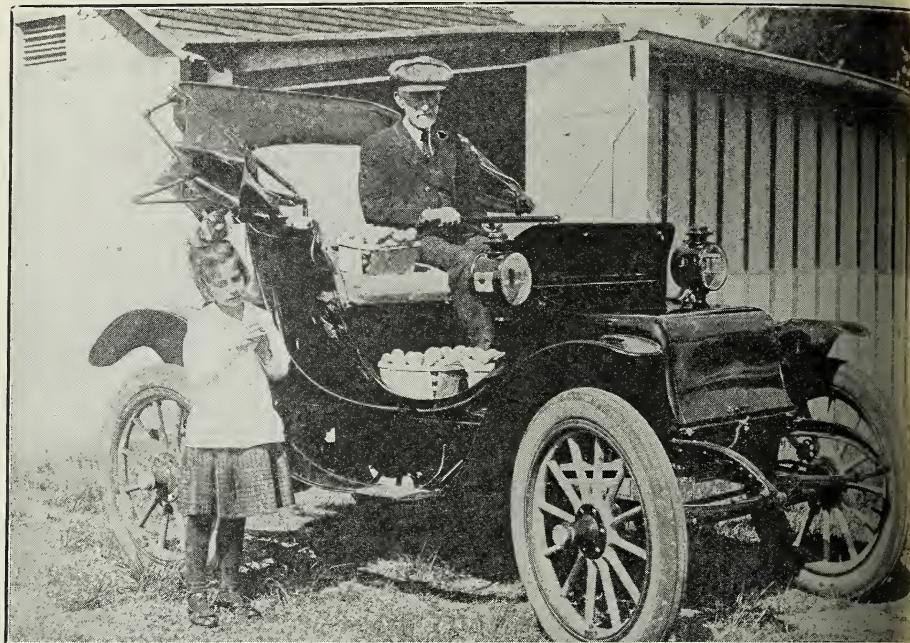
No. 3.—Half a dozen half-peck baskets of the potatoes that sold in Bradenton, Fla., last winter at 60 cents per half-peck basket.

Not far from the electric windmill we have a galvanized mill for pumping water. Huber climbed the tower of this galvanized mill and succeeded in getting a better view of the electric windmill than we have ever shown our readers before, which we give below.

A fair wind for two or three days will charge the electric batteries to their full capacity; and this capacity has run the automobile as far as 62½ miles with the one charge. You will notice by the reading on



No. 4.—The electric windmill that stored the batteries of the electric automobile.



No. 5.—The electric automobile with a load of potatoes ready to take to market.

the vane of the mill that the electric windmill is manufactured by the Wind Electric Corporation, Wyndmere, N. D. This electric outfit is intended for lighting farmhouses and outbuildings. The outfit put up for myself at Bradentown, Fla., is the first one where they have applied their invention to the running of an automobile. I have estimated roughly, that every hour of good wind will give about a mile of travel.

not more. Since the dasheen is now grown by the acre down in Florida, and shipped north by the earload, I have not given much attention to it in my garden as when the plant was first introduced.

THE ST. REGIS RASPBERRY NOT SO BAL
AFTER ALL.

On page 381 for June, 1918, I suggested that, altho the St. Regis raspberry gave beautiful fruit in only 80 days after putting out the little plants, the berry was so very prolific that it seemed to want the whole garden, and did not seem to bear very much unless considerable work was done to keep it within bounds. I am glad to say, however, that during this present season we had beautiful berries just as strawberries began to disappear; and we have had them on our table now almost daily for three or four weeks, and have greatly enjoyed them and have found them quite wholesome. These berries this year also came from a perfect swamp of bushes. I ran the plow thru the middle of the patch about a year ago and grubbed out the middle of the bed. This, very likely, contributed towards giving us the excellent crop of this year, when they are selling here, at 50c a quart.



No. 6.—A single hill of dasheens growing just north of one of the poultry-houses.

This hill of dasheens is not yet dug. I feel sure there will be a bushel of tubers if